This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a **Major**, **Municipal** permit. The discharge results from the operation of a 10.0 MGD wastewater treatment plant with an additional flow tier of 12.0 MGD. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1.	Facility Name and Mailing Address:	Aquia WWTF P.O. Box 339 Stafford, VA 22555	SIC Code :	4952 WWTP
	Facility Location:	75 Coal Landing Road Stafford, VA 22554	County:	Stafford
	Facility Contact Name:	Ed Hayner	Telephone Number:	(540) 658-4826
	Facility E-mail Address:	EHayner@staffordcountyva.gov		
2.	Permit No.:	VA0060968	Expiration Date of previous permit:	8/7/2013
	Other VPDES Permits associated with this facility:		VAR051425, VAN010023	
	Other Permits associated with this facility:		Air Registration # 41083	
	E2/E3/E4 Status:	Not Applicable (NA)		
3.	Owner Name:	Stafford County Board of Supervisors		
	Owner Contact/Title:	Harry Critzer, Director	Telephone Number:	(540) 658-8630
	Owner E-mail Address:	HCritzer@staffordcountyva.gov		
4.	Application Complete Date:	February 13, 2013		
	Permit Drafted By:	Alison Thompson	Date Drafted:	April 12, 2013
	Draft Permit Reviewed By:	Joan Crowther	Date Reviewed:	June 17, 2013
	WPM Review By:	Bryant Thomas	Date Reviewed:	June 20, 2013
	Public Comment Period :	Start Date: October 16, 2013	End Date:	November 15, 2013

5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination

Receiving Stream Name :	Austin Run, UT	Stream Code:	1aXGQ
Drainage Area at Outfall:	10.12 sq.mi.	River Mile:	0.04
Stream Basin:	Potomac	Subbasin:	Potomac
Section:	4a	Stream Class:	III
Special Standards:	b	Waterbody ID:	VAN-A28R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
30Q10 Low Flow:	0.0 MGD	30Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- ✓ State Water Control Law
- ✓ Clean Water Act
- ✓ VPDES Permit Regulation
- ✓ EPA NPDES Regulation
- ✓ EPA Guidelines
- ✓ Water Quality Standards
- ✓ Other (Policy for the Potomac River Embayments – PPRE)

7. Licensed Operator Requirements: Class I

8. Reliability Class: Class I

9. Permit Characterization:

___	Private	___	Effluent Limited	___	Possible Interstate Effect
___	Federal	✓	Water Quality Limited	___	Compliance Schedule Required
___	State	✓	Whole Effluent Toxicity Program Required	___	Interim Limits in Permit
✓	POTW	✓	Pretreatment Program Required	___	Interim Limits in Other Document
✓	TMDL	✓	e-DMR Participant		

10. Wastewater Sources and Treatment Description:

This facility is a publicly owned treatment works with a design flow of 10 MGD; the Certificate to Operate for the 10 MGD flow tier was issued February 16, 2012. Flow includes domestic, commercial, and light industrial sources. Influent is screened through one of two mechanically cleaned bar racks and then passes through an aerated grit/grease removal system. Aquia has two Schreiber treatment trains. Biological treatment occurs using the Schreiber process: flow enters the anoxic zone of the first aeration reactor and mixes with recycled mixed liquor as well as the return activated sludge; the wastewater then enters the oxic zone of the first aeration reactor and finally into the second aeration reactor. Alum is added to the wastewater in a mix tank following the biological treatment. Wastewater then flows into the clarifiers and into the Hydroclear® sand filters and/or the AquaDisk® filters. The filtered water is channeled through ultraviolet disinfection prior to discharge into an unnamed tributary to Austin Run.

Limits are included with this reissuance for an additional flow tier of 12.0 MGD.

All stormwater outfalls for the Aquia WWTP are permitted under the Stormwater Industrial General Permit.

See Attachment 2 for a facility schematic/diagram.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow(s)	Outfall Latitude and Longitude
001	Domestic and/or Commercial Wastewater	See Item 10 above.	10 MGD with expansion to 12 MGD	**38° 26' 50"** N **77° 23' 43"** W
See Attachment 3 for (Stafford Quad, DEQ #182B) topographic map.				

11. Sludge Treatment and Disposal Methods:

The facility aerobically digests the waste activated sludge. Digested sludge is stored in a holding tank until it is centrifuged. The dewatered sludge has been approved by DEQ to be used for daily cover at the Rappahannock Regional Solid Waste Landfill in Stafford County.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE 2 – Items of interest near the discharge	
1AAUA014.51	Virginia DEQ Ambient Water Quality Monitoring Station on Aquia Creek at State Route 641, upstream of the confluence of Austin Run and Aquia Creek.
Public Water Supply	Smith Lake Water Treatment Plant water supply intake at Smith Lake (impoundment of Aquia Creek). Smith Lake is also known as Aquia Reservoir and is upstream of the confluence of Austin Run and Aquia Creek.
VA0083461	Smith Lake Water Treatment Plant minor industrial discharge to a UT of Aquia Creek.
1AAUA007.92	Virginia DEQ Ambient Water Quality Monitoring Station located on Aquia Creek at Aquia Drive.
VAG846022	Vulcan Materials Stafford Quarry (formerly VA0054895) industrial discharge from three outfalls to Aquia Creek.
1AAUS000.49	Virginia DEQ Ambient Water Quality Monitoring Station located on Austin Run at the end of Aquia Drive, about 0.44 miles downstream of the outfall.
1AAUA003.71	Virginia DEQ Ambient Water Quality Monitoring Station located on Aquia Creek at the Railroad Bridge. (Aquia Creek is tidal at this location.)

13. Material Storage:

TABLE 3 - Material Storage	
Materials Description	Volume Stored
Liquid Alum	10,000 gallons
Magnesium Hydroxide	5,000 gallons
Urea Ice Melt	1,000 pounds
Degreaser	100 gallons
Deodorizer	100 gallons
Filter Cleaner, Isopropyl Alcohol	50 gallons
Diesel Fuel	4,500 gallons
Lubricating Oil	500 gallons
Grease	20 gallons

14. Site Inspection:

A focused Technical Inspection was performed by DEQ-Compliance staff on April 7, 2011; there were some minor issues with one of the Schreiber units. A Recon Site Inspection was completed on August 7, 2011due to problems with the mechanical screening unit. (Attachment 4).

15. Receiving Stream Water Quality and Water Quality Standards:

a) Ambient Water Quality Data

This facility discharges to an unnamed tributary to Austin Run, which has not been monitored and assessed by DEQ. The nearest downstream DEQ monitoring station is 1aAUS000.49, located in Austin Run at the end of Aquia Drive, approximately 0.39 miles downstream of Outfall 001. The following is the water quality summary for this segment of Austin Run, as taken from the Draft 2012 Integrated Report*:

Class III, Section 4a, special stds. b.

DEQ ambient water quality monitoring station 1aAUS000.49, at the end of Aquia Drive.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use.

The aquatic life and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

*Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.

b) 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4 – TMDL Information

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the Draft 2012 Integrated Report*							
Aquia Creek	Recreation	*E. coli*	0.04 miles	Tributaries to the Potomac River: Prince William and Stafford Counties Bacteria *DRAFT*	2.09E+13 cfu/year *E. coli*	126 cfu/100ml --- 12 MGD	*TMDL is still under development*
	Fish Consumption	PCBs	0.85 miles	Tidal Potomac PCB	1.06 g/year PCB	0.064 ng/L --- 12 MGD	10/31/2007
Information in the Chesapeake Bay TMDL							
Chesapeake Bay	Aquatic Life	Total Nitrogen	---	Chesapeake Bay TMDL 12/29/2010	73,093 lbs/yr TN	Edge of Stream (EOS) Loads	NA
		Total Phosphorus			4,386 lbs/yr TP		
		Total Suspended Solids			730,934.4 lbs/yr TSS		

**Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

The bacteria TMDL for the Tributaries to the Potomac River: Prince William and Stafford Counties is still under development. This facility was included in the development of the TMDL, and has been allotted a WLA. This TMDL project is scheduled for completion no later than August 2013.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the draft 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition]. Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

The full planning statement is found in Attachment 5.

c) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Austin Run, UT is located within Section 4a of the Potomac River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachments 6 and 7 detail other water quality criteria applicable to the receiving stream. The Policy for the Potomac River Embayments have a summer ammonia period of April through October, so two sets of criteria have historically been derived for this facility. Attachment 6 is for the April through October period and Attachment 7 is for the November through March period.

Ammonia:
The freshwater, aquatic life Water Quality Criteria for Ammonia are dependent on the instream temperature and pH. The 90^{th} percentile temperature and pH values are used because they best represent the critical design conditions of the receiving stream. For this facility, effluent temperature and pH data were used since the critical stream flows are zero for the receiving stream.

The 90^{th} percentile pH and temperature values used in the derivation of the ammonia criteria were derived from effluent data from January 2000 through October 2002 (Attachment 8). With the last reissuance, staff reviewed the data and determined that the derivations were still applicable. With this reissuance, effluent pH data from December 2008 through February 2013 were reviewed (Attachment 9). The results are not significantly different and so pH values will again be carried forward. There is no new temperature data, so the existing values will be carried forward. The ammonia criteria are summarized in Attachments 6 and 7.

Metals Criteria:
The 7Q10 of the receiving stream is zero and no ambient data is available, the effluent data for hardness can be used to determine the metals criteria. The Total Hardness of the final effluent was tested on September 14, 2011, April 25, 2012, and October 17, 2012, with the results being 92.2 mg/L, 91.1 mg/L, and 102 mg/L respectively. The hardness-dependent metals criteria in Attachment 6 and 7 are based on an average effluent value of 95.1 mg/L.

Bacteria Criteria:
The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

1) *E. coli* bacteria per 100 ml of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 ml)	126

[1]For a minimum of four weekly samples [taken during any calendar month].

d) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Austin Run, UT, is located within Section 4a of the Potomac River Basin. This section has been designated with a special standard of b.

Special Standard "b" (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac River Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 Bridge in King George County. The regulation sets effluent limits for $CBOD_5$, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies.

e) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on March 27, 2013, for records to determine if there are threatened or endangered species in the vicinity of the discharge. There were no threatened or endangered species identified within a 2 mile radius of the discharge. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened and endangered species found near the discharge. The database search results are found in Attachment 10.

The stream that the facility discharges to is within a reach identified as having an Anadromous Fish Use. It is staff's best professional judgment that the proposed limits are protective of this use.

f) Adjacent States' Water Quality Standards

Aquia WWTF discharges to Austin Run, UT, which is a tributary to Aquia Creek and to the Potomac River. The discharge is approximately 7.4 miles from the Maryland State line. Staff reviewed the State of Maryland's Water Quality Standards and believes that the effluent limitations established in this permit will comply with Maryland's water quality standards at the point Aquia Creek enters the Potomac River.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream, an unnamed tributary to Austin Run, has been classified as Tier 1 based on the receiving waters having no flow during critical conditions so the stream will reflect the effluent quality, and there are downstream impairments for bacteria, PCBs, and nutrients. Permit limits proposed have been established by

determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:
Effluent data obtained from the permit application and Discharge Monitoring Reports (DMRs) has been reviewed and determined to be suitable for evaluation. Effluent data from December 2008 through February 2013 were reviewed, and there was one Warning Letter issued in May 2011 for a weekly average ammonia exceedance. The effluent data summary can be found in Attachment 9.

The facility performed three priority pollutant scans that were submitted as part of the application. A review of these scans showed quantifiable concentrations of dissolved copper, dissolved nickel, and dissolved zinc.

The following pollutants require a wasteload allocation analysis*:* Ammonia as N, Copper, Nickel, and Zinc.

b) Mixing Zones and Wasteload Allocations (WLAs):
Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f) (Q_s)] - [(C_s) (f) (Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o.

c) Effluent Limitations The Policy for the Potomac River Embayments, Outfall 001

The PPRE includes monthly average effluent limits that apply to all sewage treatment plants:

Parameter	Monthly Average (mg/L)
$CBOD_5$	5
Total Suspended Solids	6.0
Total Phosphorus	0.18
NH_3 (Apr 1 – Oct 31)	1.0

The PES states that the "above limitations shall not replace or exclude the discharge from meeting the requirements of the State's Water Quality Standards (9VAC25-260-10 et seq.)."

d) Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

April through October
The Potomac Embayment Standards are applicable to this period, so the monthly average ammonia limitation of 1.0 mg/L and weekly average limitation of 1.5 mg/L shall be carried forward with this reissuance.

November through March
Staff reviewed pH and temperature and has concluded it is not significantly different than what was used previously to derive ammonia criteria and the existing ammonia limitations. DEQ guidance suggests using a sole data point of 9.0 mg/L for discharges containing domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage. Therefore, existing November through March ammonia limitations of 2.1 mg/L monthly average and 2.6 mg/L weekly average are proposed to continue in the reissued permit at both flow tiers (Attachment 11).

2) Total Residual Chlorine:

Stafford County installed equipment for chlorine disinfection in 2007 because of past violations of the *E. coli* limit. Because of this equipment, staff included total residual chlorine limitations with the 2008 reissuance. The hypochlorite tank is still in place, but is empty and none of the feed lines are intact, so staff shall remove the chlorine limitations with this reissuance.

3) Metals:

Copper
Three quantifiable results for dissolved copper are available for evaluation: 3.1 ug/L on September 14, 2011, 1.1 ug/L on April 25, 2012, and 2.9 ug/L on October 17, 2012. These values were evaluated and no limit is necessary for copper (Attachment 11).

Nickel
Two quantifiable results for dissolved nickel are available for evaluation: 2.97 ug/L on September 14, 2011, and 2.38 ug/L on October 17, 2012. These values were evaluated and no limit is necessary for copper (Attachment 11).

Zinc
Three quantifiable results for dissolved zinc are available for evaluation: 21.8 ug/L on September 14, 2011, 28.8 ug/L on April 25, 2012, and 38.0 ug/L on October 17, 2012. These values were evaluated and no limit is necessary for copper (Attachment 11).

e) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day ($CBOD_5$), total suspended solids (TSS), and pH limitations are proposed.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

f) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients
VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of $\geq$0.04 MGD to treat for TN and TP to either BNR levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN010023. Total Nitrogen Annual Loads and Total Phosphorus Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation* which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, i.e., those with design flows of $\geq$0.5 MGD above the fall line and $\geq$0.1 MGD below the fall line.

Monitoring for Nitrates + Nitrites, Total Kjeldahl Nitrogen, and Total Nitrogen are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for Total Nitrogen are included in this individual permit. The annual averages are based on the technology installed as part of the WQIF grant funding and on 9VAC25-40 and GM07-2008.

Total Phosphorus – No Total Phosphorus annual average limits are included since the facility has monthly average and weekly average concentration limits in place for local water quality. The Policy for the Potomac River Embayments (PPRE) suggests water quality modeling may be required if staff believed the PPRE limits may not be sufficient to protect the receiving waters. With expansion beyond 6.5 MGD, staff believed modeling may have been required because of increased loadings of phosphorus. However, because the endpoints by which the impacts from phosphorus loadings may be measured, specifically, chlorophyll-a, are are most likely different than what they were with the modeling done for Aquia Creek in 1987 (Attachment 12) as well as the significant work done as part of the Chesapeake Bay TMDL, staff believes a cap on the loading limit is appropriate in lieu of modeling. Phosphorous loadings for the 10.0 and 12.0 MGD tiers will be the same as that for the 6.5 MGD tier. It is staff's best professional judgment that retaining the loading from the 6.5 MGD tier at the higher flows will continue to protect the Water Quality Standards for Aquia Creek. The concentration for TP will remain at 0.18 mg/L as specified in the PPRE.

g) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, $cBOD_5$, Total Suspended Solids, Ammonia, pH, Dissolved Oxygen, Total Phosphorus, Total Nitrogen, and *E. coli*. Monitoring is included for TKN and Nitrate+Nitrite.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 3.785.

The mass loading (lb/d) for Total Phosphorus monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 8.345.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

Ammonia loadings are included for the summer months since the basis for the limit is PPRE and not the toxic water quality criteria.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for CBOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19.a. Effluent Limitations/Monitoring Requirements:

Design flow of this facility is 10.0 MGD.

Effective Dates: During the period beginning with the CTO for the 10 MGD plant and lasting until the issuance of the CTO for the 12.0 MGD facility, or until the expiration of the permit, whichever comes first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
$CBOD_5$	5	5 mg/L	190 kg/day	8 mg/L	300 kg/day	NA	NA	1/D	24HC
TSS	5	6.0 mg/L	230 kg/day	9.0 mg/L	340 kg/day	NA	NA	1/D	24HC
TKN	1	NL mg/L	NA	NA	NA	NA	NA	1/W	24HC
Ammonia, as N (Apr-Oct)	5	1.0 mg/L	38 kg/day	1.5 mg/L	57 kg/day	NA	NA	1/D	24HC
Ammonia, as N (Nov-March)	3	2.1 mg/L		2.6 mg/L		NA	NA	1/D	24HC
$NO_2 + NO_3$ as Nitrogen	1	NL mg/L	NA	NA	NA	NA	NA	1/W	24 HC
Total Nitrogen – Monthly #	1	NL mg/L	NA	NA	NA	NA	NA	1/W	Calculated
Total Nitrogen – Year to Date	1	NL mg/L	NA	NA	NA	NA	NA	1/M	Calculated
Total Nitrogen Calendar Year	1	3.0 mg/L	NA	NA	NA	NA	NA	1/YR	Calculated
Total Phosphorus	4, 5*	0.18 mg/L	10 lb/day	0.27 mg/L	15 lb/day	NA	NA	1/D	24H-C
pH	3	NA		NA		6.0 S.U.	9.0 S.U.	1/D	Grab
Dissolved Oxygen	2, 3, 4	NA		NA		6.0 mg/L	NA	1/D	Grab
E. coli (Geometric Mean)	3	126 n/100 mls		NA		NA	NA	1/D	Grab
Chronic Toxicity – *C. dubia* (TU_c)		NA		NA		NA	NL	1/YR	24HC
Chronic Toxicity – *P. promelas* (TU_c)		NA		NA		NA	NL	1/YR	24HC

The basis for the limitations codes are:

1. 9VAC25-40, 9VAC25-820
2. Best Professional Judgment
3. Water Quality Standards
4. Stream Model
5. Policy for the Potomac River Embayments

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
1/W = Once every week.
1/M = Once every month.
1/YR = Once every year.

\# Total Nitrogen = Sum of TKN plus $NO_2 + NO_3$.

* See Section 17.f.

24H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty-four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of twenty-four (24) grab samples obtained at hourly or smaller intervals may be collected Where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ±10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

19.b. Effluent Limitations/Monitoring Requirements:

Design flow of this facility is 12.0 MGD.
Effective Dates: During the period beginning with the issuance of the CTO for the 12.0 MGD and lasting until the expiration of the permit.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
$CBOD_5$	5	5 mg/L	230 kg/day	8 mg/L	360 kg/day	NA	NA	1/D	24HC
TSS	5	6.0 mg/L	270 kg/day	9.0 mg/L	410 kg/day	NA	NA	1/D	24HC
TKN	1	NL mg/L	NA	NA	NA	NA	NA	1/W	24HC
Ammonia, as N (Apr-Oct)	5	1.0 mg/L	45 kg/day	1.5 mg/L	68 kg/day	NA	NA	1/D	24HC
Ammonia, as N (Nov-March)	3	2.1 mg/L		2.6 mg/L		NA	NA	1/D	24HC
$NO_2 + NO_3$ as Nitrogen	1	NL mg/L	NA	NA	NA	NA	NA	1/W	24HC
Total Nitrogen – Monthly#	1	NL mg/L	NA	NA	NA	NA	NA	1/W	Calculated
Total Nitrogen – Year to Date	1	NL mg/L	NA	NA	NA	NA	NA	1/M	Calculated
Total Nitrogen Calendar Year (mg/L)	1	3.0 mg/L	NA	NA	NA	NA	NA	1/YR	Calculated
Total Phosphorus (mg/L)	4, 5*	0.18 mg/L	10 lb/day	0.27 mg/L	15 lb/day	NA	NA	1/D	24HC
pH	3	NA		NA		6.0 S.U.	9.0 S.U.	1/D	Grab
Dissolved Oxygen	2, 3, 4	NA		NA		6.0 mg/L	NA	1/D	Grab
E. coli (Geometric Mean)	3	126 n/100 mls		NA		NA	NA	1/D	Grab
Chronic Toxicity – *C. dubia* (TU_c)		NA		NA		NA	NL	1/3M	24HC
Chronic Toxicity – *P. promelas* (TU_c)		NA		NA		NA	NL	1/3M	24HC

The basis for the limitations codes are:

1. 9VAC25-40, 9VAC25-820
2. Best Professional Judgment
3. Water Quality Standards
4. Stream Model
5. Policy for the Potomac River Embayments

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
1/W = Once every week.
1/M = Once every month.
1/3M = Once every three months.
1/YR = Once every year.

\# Total Nitrogen = Sum of TKN plus $NO_2 + NO_3$

* See Section 17.f.

24H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty-four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of twenty-four (24) grab samples obtained at hourly or smaller intervals may be collected Where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ±10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

20. Other Permit Requirements:

a) Part I.B. of the permit contains quantification levels and compliance reporting instructions. 9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

b) Permit Section Part I.C., details the requirements for Whole Effluent Toxicity Program.

The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. A WET Program is imposed for municipal facilities with a design rate >1.0 MGD, with an approved pretreatment program or required to develop a pretreatment program, or those determined by the Board based on effluent variability, compliance history, IWC, and receiving stream characteristics.

The facility shall continue to monitor annually for Whole Effluent Toxicity (WET). When the facility expands to 12.0 MGD, the facility shall monitor WET for 10 quarters and then shall be allowed to ask for a reduction to annual monitoring if not toxicity issues are noted in the effluent.

c) Permit Section Part I.D., details the requirements of a Pretreatment Program.

The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.D requires all discharges to protect water quality. The VPDES Permit Regulation at 9VAC25-31-730 through 900., and the Federal Pretreatment Regulation at 40 CFR Part 403 requires POTWs with a design flow of >5.0 MGD and receiving from Industrial Users (IUs) pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards to develop a pretreatment program.

This treatment works is a POTW with a design capacity of 10.0 MGD with an expansion tier to 12.0 MGD. Stafford County also owns and operates the Little Falls Run Wastewater Treatment Plant (VA0076392). To date, one Categorical Industrial Users (CIUs) has been identified as discharging to the Aquia WWTF; the industry is the Quantico Metal Finishing Bluing/Parkerizing Operation at the Quantico Marine Base. Stafford County developed the County's pretreatment program within the Little Falls Run WWTP VPDES permit since two CIUs were identified in the Little Falls Run WWTP survey. The Pretreatment Program was originally approved on January 3, 1996.

The pretreatment program conditions in the proposed permit reissuance will include: implementation of the approved pretreatment program that complies with the Clean Water Act, State Water Control Law, state regulations, and the approved program.

21. Other Special Conditions:

a) 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b) Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class I operator.

f) Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of I.

g) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

h) Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

i) Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

j) Nutrient Offsets. The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

k) E3/E4. 9VAC25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully

implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

l) Nutrient Reopener. 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

m) PCB Pollutant Minimization Plan. This special condition requires the permittee, upon notification from DEQ-NRO, to submit a Pollutant Minimization Plan (PMP) to identify known and unknown sources of low-level PCBs in the effluent. This special condition details the contents of the PMP and also requires an annual report on progress to identify sources.

n) TMDL Reopener: This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

22. Changes to the Permit from the Previously Issued Permit:

a) Special Conditions:
   1) The O&M Manual special condition wording was updated to reflect current agency guidance.
   2) The PCB Monitoring special condition was removed since the facility completed the required sampling. A special condition was added requiring the permittee, upon notification from DEQ, to submit a PMP to identify and reduce PCBs in the effluent.
   3) In Part II of the permit, special condition A was updated to include the requirement for VELAP Certification.

b) Monitoring and Effluent Limitations:
   1) Total Residual Chlorine limitations were removed with this reissuance since the equipment is no longer in place.

23. Variances/Alternate Limits or Conditions:

There are no variances or alternate limits in this permit.

24. Public Notice Information:

First Public Notice Date: 10/16/13 Second Public Notice Date: 10/23/13

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3834, alison.thompson@deq.virginia.gov. See Attachment 13 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The

public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

25. Additional Comments:

Previous Board Action(s): There have been three Notices of Violations issued to the Aquia WWTP for Sanitary Sewer Overflows: November 2011, August 2010, and July 2010. No enforcement action was taken since the problems were satisfactorily resolved.

Staff Comments: None

Public Comment: DEQ received comments from Brett Hillman, Fish and Wildlife Biologist with the US Fish & Wildlife Service – Virginia Field Office. He asked about the derivation of the Ammonia as N weekly average during the April to October time period. DEQ provided information on how we calculate the weekly averages using a 1.5 multiplier. Mr. Hillman also inquired if the newly published Ammonia criteria could be used to calculate the Ammonia limits in the draft permit. DEQ responded that since the new federal Ammonia criteria have not been incorporated into the Virginia Water Quality Standards, that no changes would be made to the limits presented in the draft permit.

EPA Checklist: The checklist can be found in Attachment 14.

26. Development of the Policy for the Potomac River Embayments (9VAC25-415-10)

The following excerpt is modified from the 1997 Fact Sheet for the reissuance of VA0060968. The information is carried forward with this reissuance so the history is maintained as part of the permit file.

The State Water Control Board adopted the Potomac Embayment Standards (PES) in 1971 to address serious nutrient enrichment problems evident in the Virginia embayments and Potomac River at the time. These standards applied to sewage treatment plants discharging into Potomac River embayments in Virginia and for expansions of existing plants discharging into the non-tidal tributaries of these embayments. The standards were actually effluent limitations for BOD, unoxidized nitrogen, total phosphorus, and total nitrogen:

Parameter	Effluent Limitations (monthly average)
BOD_5	3 mg/L
Unoxidized Nitrogen	1 mg/L (April – October)
Total Phosphorus	0.2 mg/L
Total Nitrogen	8 mg/L (when technology is available)

Based upon these standards, several hundred million dollars were spent during the 1970s and 1980s upgrading major treatment plants in the City of Alexandria and the Counties of Arlington, Fairfax, Prince William, and Stafford. Today, these localities operate advanced wastewater treatment plants, which have contributed a great deal to the dramatic improvement in the water quality of the upper Potomac estuary.

Before the planned upgrades at these facilities were completed, and the fact that water quality improved, questions arose over the high capital and operating costs that would result from meeting all of the requirements contained in the PES. Questions also arose due to the fact that the PES limits were blanket effluent limitations that applied equally to different bodies of water. Therefore, in 1978, the State Water Control Board committed to reevaluate the PES. In 1984, a major milestone was reached when the Virginia Institute of Marine Science (VIMS) completed state-of-the-art models for each of the embayments. The Board then selected the Northern Virginia Planning District Commission (NVPDC) to conduct wasteload allocation studies of the Virginia embayments using the VIMS models. In 1988, these studies were completed and effluent limits that would protect the embayments and the main stem of the Potomac River were developed for each major facility. The studies and all pertinent information are on file in the DEQ Northern Region Office.

Since the PES had not been amended or repealed, VPDES permits had included the PES standards as effluent limits. Since the plants could not meet all of the requirements of the PES, the plant owners operated under consent orders or consent decrees with operating effluent limits for the treatment plants that were agreed upon by the owners and the Board.

In 1991 and 1992, several Northern Virginia jurisdictions with embayment treatment plants submitted a petition to the Board requesting that the Board address the results of the VIMS/NVPDC studies. Their petition requested revised effluent limitations and a defined modeling process for determining effluent limitations.

The recommendations in the petition were designed to protect the extra sensitive nature of the embayments along with the Potomac River that have become a popular recreational resource during recent years. The petition included requirements more stringent than would be applied using the results of the modeling/allocation work conducted in the 1980s. With the inherent uncertainty of modeling, the petitioners question whether the results of modeling would provide sufficient protection for the embayments. By this petition, the local governments asked for continued special protection for the embayments based upon a management approach that uses stringent effluent limits. They believe this approach has proven successful over the past two decades. In addition the petition included a modeling process that will be used to determine if more stringent limits are needed in the future due to increased wastewater discharges.

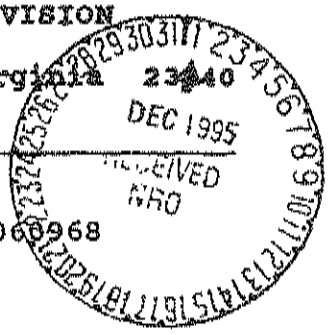
The State Water Control Board adopted the petition, with revisions, as a regulation on September 12, 1996. The regulation is entitled *Policy for the Potomac River Embayments* (9VAC25-415-10). On the same date, the Board repealed the old PES. The new regulation became effective on April 3, 1997, and contains the following effluent limits:

Parameter	**Effluent Limitations (monthly average)**
$CBOD_5$	5 mg/L
TSS	6 mg/L
Total Phosphorus	0.18 mg/L
Ammonia as Nitrogen	1.0 mg/L

9VAC25-415-50 Water Quality Monitoring. The Policy says "that water quality models may be required to predict the effects of wastewater discharges on the water quality of the receiving waterbody, the embayment, and the Potomac River. The purpose of the modeling shall be to determine if more stringent limits than those required by 9VAC25-415-40 (the Policy's effluent limitations) are required to meet water quality standards."

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240



SUBJECT: Flow Frequency Determination
Aquia Wastewater Treatment Facility - VA#0060968

TO: Lyle Anne Collier, NRO

FROM: Paul Herman, WQAP

DATE: November 30, 1995

COPIES: Ron Gregory, Charles Martin, File

The Aquia Wastewater Treatment Facility discharges to an unnamed tributary of the Austin Run near Stafford, VA. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

At the discharge point, the receiving stream is shown to be intermittent on the USGS Stafford quadrangle topographic map. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow7Q10, and harmonic mean. The receiving stream is shown to be intermittent all the way to its confluence with Austin Run. Flow frequencies have been determined for Austin Run at the point just upstream of the confluence with the discharge receiving stream.

The VDEQ has operated a continuous record gage on the Aquia Creek near Garrisonville, VA (#01660400) since 1971. The gage is located at the Route 641 bridge in Stafford County, VA. The flow frequencies for the gage and the discharge point are presented below. The values at the discharge point were determined by drainage area proportions and do not address any withdrawals, discharges, or springs lying upstream.

Aquia Creek near Garrisonville, VA (#01660400):

Drainage Area = 34.9 mi^2

1Q10 = 0.0 cfs	High Flow 1Q10 = 3.9 cfs
7Q10 = 0.025 cfs	High Flow 7Q10 = 4.8 cfs
30Q5 = 0.28 cfs	HM = 0.0 cfs

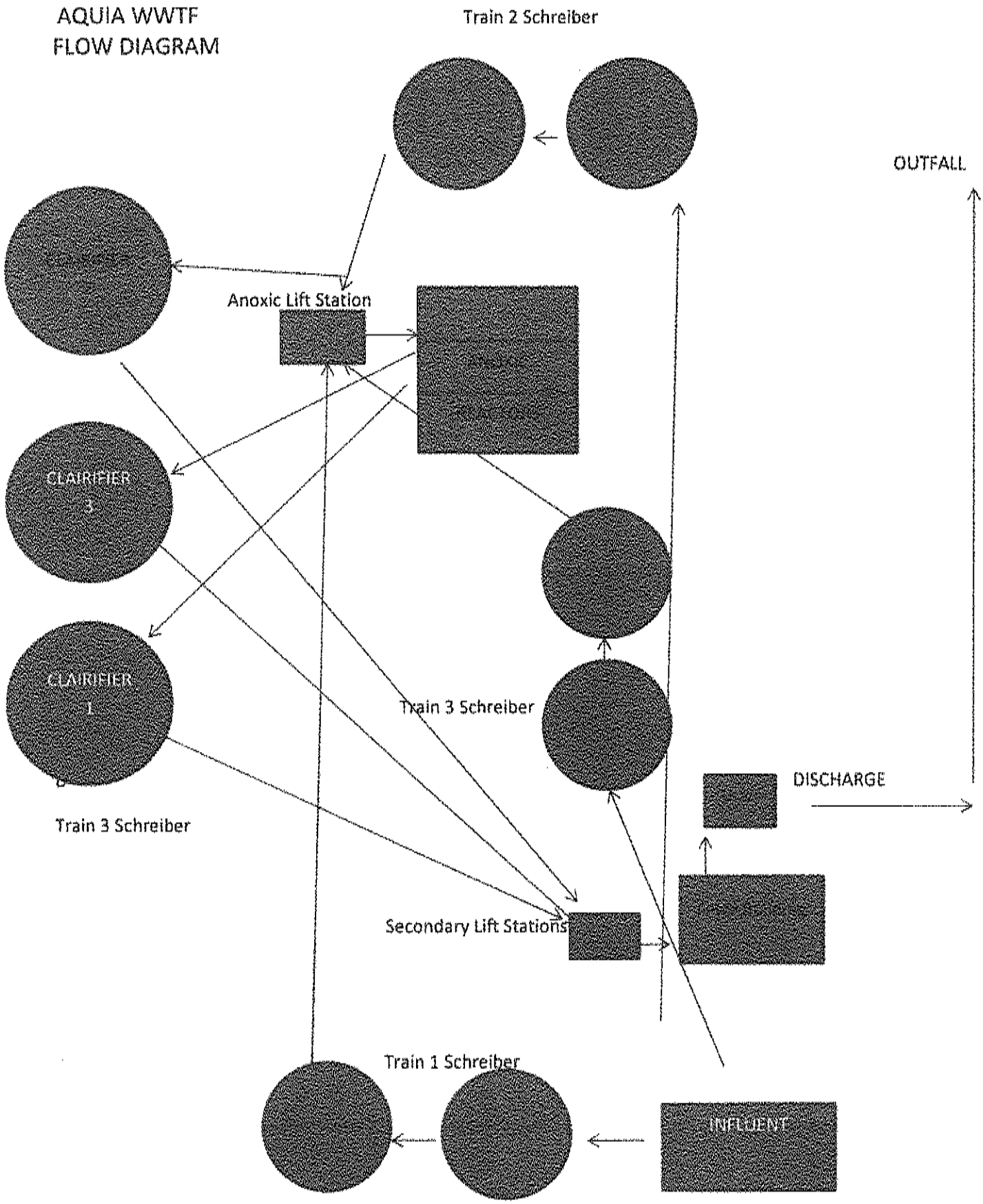
The high flow months are December through May.

Austin Creek just upstream of intermittent discharge receiving stream:

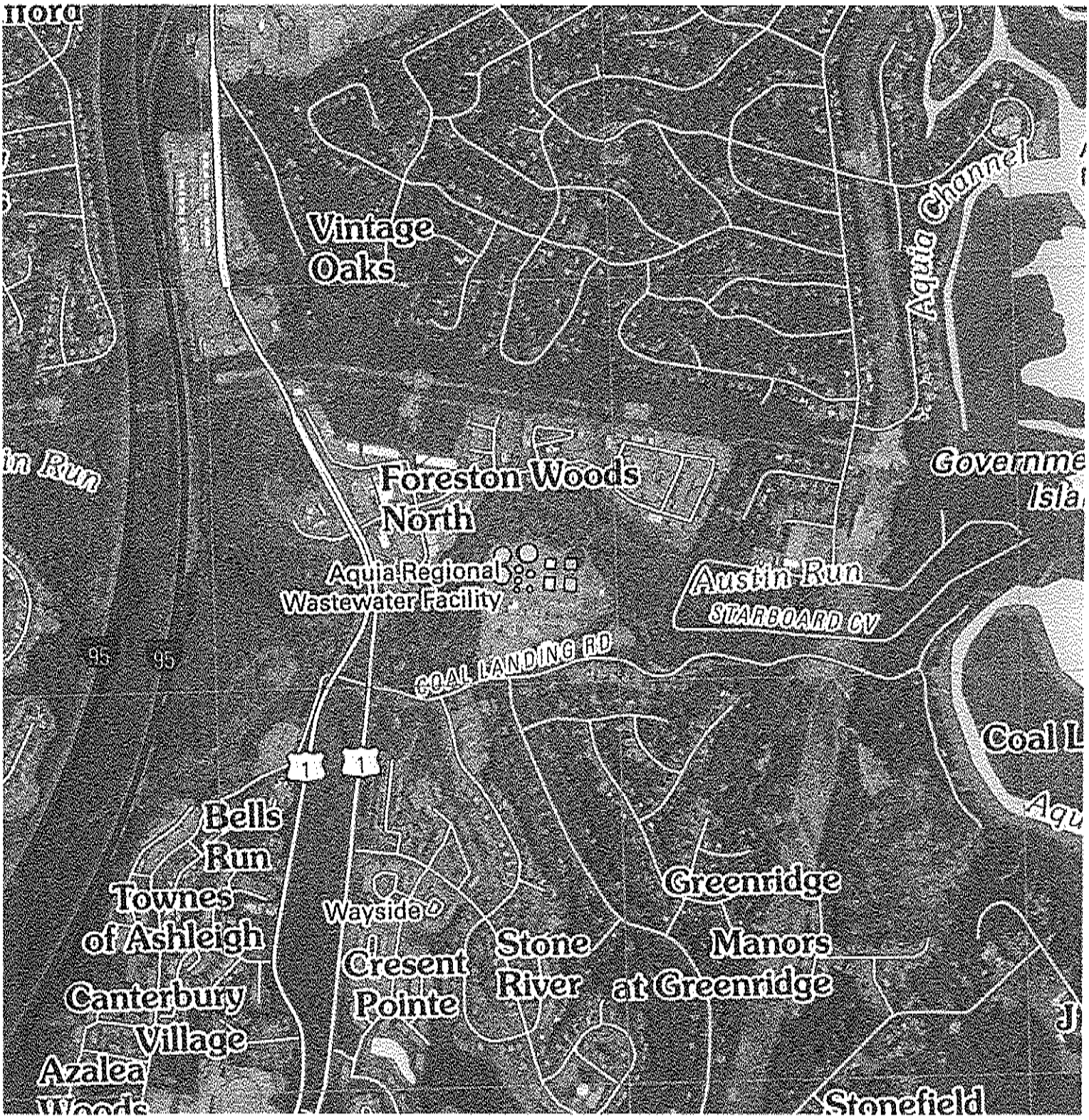
Drainage Area = 10.12 mi^2

1Q10 = 0.0 cfs	High Flow 1Q10 = 1.1 cfs
7Q10 = 0.007 cfs	High Flow 7Q10 = 1.4 cfs
30Q5 = 0.081 cfs	HM = 0.0 cfs

If you have any questions concerning this analysis, please let me know.



Attachment 2



Attachment 3

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

May 5, 2011

Mr. Michael Smith
Assistant Director of Utilities
1300 Courthouse Road
P.O. Box 339
Stafford, VA 22555-0339

Re: **Aquia WWTP, Permit #VA0060968**

Dear Mr. Smith:

Enclosed are copies of the focused technical and laboratory inspection reports generated from observations made on April 7, 2011 while conducting a Facility Technical Inspection at the Aquia - Wastewater Treatment Plant (WWTP). The compliance staff would like to thank the Ed Hayner for his time and assistance during the inspection.

Please note the requirements and recommendations addressed in the Required Corrective Action section. Please submit in writing a progress report to this office by June 4, 2011, for the items addressed. Your response may be sent either via the US Postal Service or electronically, via E-mail. DEQ recommends sending electronic responses as an Acrobat PDF or in a Word-compatible, write-protected format. Additional inspections may be conducted to confirm the facility is in compliance with permit requirements.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Regional Office at (703) 583-3882 or by e-mail at Sharon.Allen@deq.virginia.gov.

Sincerely,

Water Compliance Inspector
Environmental Specialist II

cc: Permit/DMR File

Electronic Copy:
Compliance Manager, Compliance Auditor
Ed Hayner – Aquia WWTP

DEQ
WASTEWATER FACILITY INSPECTION REPORT
PREFACE

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date
VA0060968	**August 8, 2008**		**August 7, 2013**

Facility Name	Address	Telephone Number
Aquia WWTP	**75 Coal Landing Road Stafford, VA 22554**	**(540) 658-4826**
Owner Name	Address	Telephone Number
Stafford County	**P.O. Box 339 Stafford, VA 22555**	**(540) 658-8620**
Responsible Official	Title	Telephone Number
Mike Smith	**Assistant Director of Utilities**	**(540) 658-8620**
Responsible Operator	Operator Cert. Class/number	Telephone Number
Ed Hayner	**Class I; 1909000985**	**(540) 658-4826**

TYPE OF FACILITY:							
DOMESTIC				**INDUSTRIAL**			
Federal		Major	**X**	Major		Primary	
Non-federal	**X**	Minor		Minor		Secondary	

INFLUENT CHARACTERISTICS:	DESIGN:
Flow (Jan-Mar 2011)	**4.962 MG**
Population Served	**58,846**
Connections Served	**19,168**
BOD_5 (Jan-Mar 2011)	**254 mg/L**
TSS (Jan-Mar 2011)	**319 mg/**

EFFLUENT LIMITS: Units in mg/L unless otherwise specified.

Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
pH, s.u.	**6.0**		**9.0**	**DO**	**6.0**		
$CBOD_5$		**5**	**8**	**TSS**		**6.0**	**9.0**
E. coli, n/100ml		**126**		**Ammonia-N (April –Oct)**		**1.0**	**1.5**
Ammonia-N (Nov –Mar)		**2.1**	**2.5**	**TKN**		**NL**	**NA**
NO2-NO3-N		**NL**	**NA**	**TN**		**NL**	**NA**
TP		**.18**	**.27**				

Receiving Stream	**Austin Run, UT**
Basin	**Potomac River**
Discharge Point (LAT)	**38° 26′ 50″**
Discharge Point (LONG)	**77° 23′ 43″**

Virginia Department of Environmental Quality
Northern Regional Office

FOCUSED CEI TECH/LAB INSPECTION REPORT

FACILITY NAME: Aquia WWTP		**INSPECTION DATE:**	April 7, 2011
		INSPECTOR	S. Allen
PERMIT No.: VA0060968		**REPORT DATE:**	May 4, 2011
TYPE OF FACILITY: ☑ Municipal ☑ Major ☐ Industrial ☐ Minor ☐ Federal ☐ Small Minor ☐ HP ☐ LP		**TIME OF INSPECTION:**	Arrival 0945 / Departure
		TOTAL TIME SPENT (including prep & travel)	**40 hrs**
PHOTOGRAPHS: ☑ Yes ☐ No		**UNANNOUNCED INSPECTION?**	☑ Yes ☐ No
REVIEWED BY / Date: 5/4/11			
PRESENT DURING INSPECTION:	Ed Hayner - Aquia WWTP Rebecca Johnson - DEQ		

TECHNICAL INSPECTION

1. Has there been any new construction? • If so, were plans and specifications approved? Comments: **A CTO was issued on Feb 7, 2008 for all upgrades approved as part of "Aquia Wastewater Treatment Facility Improvements Package, Phase III."**	☑ Yes ☐ No
2. Is the Operations and Maintenance Manual approved and up-to-date? Comments: A revised section One of the O&M manual was submitted to DEQ on March 10, 2010 and approved March 23, 2010	☑ Yes ☐ No
3. Are the Permit and/or Operation and Maintenance Manual specified licensed operator being met? Comments:	☑ Yes ☐ No
4. Are the Permit and/or Operation and Maintenance Manual specified operator staffing requirements being met? Comments: **10 Operators, 2 Centrifuge Operators, 2 Maintenance Mechanics.**	☑ Yes ☐ No
5. Is there an established and adequate program for training personnel? Comments:	☑ Yes ☐ No
6. Are preventive maintenance task schedules being met? Comments:	☑ Yes ☐ No
7. Does the plant experience any organic or hydraulic overloading? Comments:	☐ Yes ☑ No
8. Have there been any bypassing or overflows since the last inspection? Comments: **Overflow at the headworks in March 2011.** **Planned bypass in April 2011.**	☑ Yes ☐ No

TECHNICAL INSPECTION

9. Is the standby generator (including power transfer switch) operational and exercised regularly? Comments: **Two new generators, only one installed so far. Two megawatt unit Cummings Power unit. Tested under load monthly.**	☑ Yes ☐ No
10. Is the plant alarm system operational and tested regularly? Comments:	☑ Yes ☐ No
11. Is sludge disposed of in accordance with the approved sludge management plan? Comments:	☑ Yes ☐ No
12. Is septage received? • If so, is septage loading controlled, and are appropriate records maintained? Comments: **Records for March 2011 reviewed**	☑ Yes ☐ No
13. Are all plant records (operational logs, equipment maintenance, industrial waste contributors, sampling and testing) available for review and are records adequate? Comments:	☑ Yes ☐ No

14. Which of the following records does the plant maintain?

☑ Operational logs ☐ Mechanical equipment maintenance

☑ Instrument maintenance & calibration ☑ Industrial Waste Contribution (Municipal

Comments:

15. What does the operational log contain?

☑ Visual observations ☑ Flow Measurement ☑ Laboratory results ☑ Process adjustments

☐ Control calculations ☐ Other (specify)

Comments:

16. What do the mechanical equipment records contain?

☑ As built plans and specs ☑ Manufacturers instructions ☑ Lubrication schedules

☑ Spare parts inventory ☑ Equipment/parts suppliers

☐ Other (specify)

Comments:

17. What do the industrial waste contribution records contain (Municipal only)?

☑ Waste characteristics ☐ Impact on plant ☑ Locations and discharge types

☐ Other (specify)

Comments:

18. Which of the following records are kept at the plant and available to personnel?

☑ Equipment maintenance records ☑ Operational log ☑ Industrial contributor records

☑ Instrumentation records ☑ Sampling and testing

Comments:

19. List records not normally available to plant personnel and their location:

Comments: **None**

20. Are the records maintained for the required time period (three or five years)? Comments:	☑ Yes ☐ No

Permit #	VA0060968

UNIT PROCESS EVALUATION SUMMARY SHEET

UNIT PROCESS	APPLICABLE	PROBLEMS*	COMMENTS
Sewage Pumping			
Flow Measurement (Influent)	**Y**	**N**	
Screening/Comminution	**Y**	**N**	
Grit Removal	**Y**	**N**	
Oil/Water Separator			
Flow Equalization			
Ponds/Lagoons			
Imhoff Tank			
Primary Sedimentation			
Trickling Filter			
Septic Tank and Sand Filter			
Rotating Biological Contactor			
Activated Sludge Aeration	**Y**	**3**	The wheel on the aerobic Schreiber tank of train #2 failed on the morning on April 7th and was in the process of repair while we were on site.
Biological Nutrient Removal	**Y**		Schreiber Process; ENR being installed
Sequencing Batch Reactor			
Secondary Sedimentation	**Y**	**5**	The Schreiber tanks and the clarifier in train #1 had a layer of scum/foam on top of the water; Mr. Hayner said this resulted from having to switch flow from train 1 to train 2 and back again recently.
Flocculation			
Tertiary Sedimentation			
Filtration	**Y**	**N**	Aqua Disk filters
Micro-Screening			
Activated Carbon Adsorption			
Chlorination			
Dechlorination			
Ozonation			
Ultraviolet Disinfection	**Y**	**N**	
Post Aeration	**Y**	**N**	
Flow Measurement (Effluent)	**Y**	**N**	
Land Application (Effluent)			
Plant Outfall	**Y**	**N**	A new outfall pipe has been installed next to the current Outfall 001; both will be in service.
Sludge Pumping	**Y**	**N**	
Flotation Thickening (DAF)			
Gravity Thickening			
Aerobic Digestion	**N**	**N**	The digesters are out of service. WAS is sent directly to the aerated sludge silos.
Anaerobic Digestion			
Lime Stabilization			
Centrifugation	**Y**	**N**	
Sludge Press			
Vacuum Filtration			
Drying Beds			
Thermal Treatment			
Incineration			
Composting			
Land Application (Sludge)			

* Problem Codes

1. Unit Needs Attention
2. Abnormal Influent/Effluent
3. Evidence of Equipment Failure
4. Unapproved Modification or Temporary Repair
5. Evidence of Process Upset
6. Other (explain in comments)

Permit #	VA0060968

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

- The facility has two new automatic bar screens. A cleaning rake is float activated based on water level prior to screen. We observed the rakes in action. There is also one bypass channel with manual bar screen.

- A new Westech grit classifier has been installed.

- New 36" channel bored between influent channel and train #3.

- The staff is currently running treatment trains One and Two. Treatment train Three is under construction. All three trains use Schreiber units- flow enters an anoxic unit, which is followed by aerobic unit, than a clarifier. Once the Enhanced Nutrient Removal (ENR) is completed, flow from the aerobic Schreiber will be pumped to the ENR tanks (one channel for each train). Water will be pumped from post- Schreiber lift station to the anoxic zone followed by aerobic zones and a re-aeration zone at end. After re-aeration tank, water will be combined and sent to the clarifiers.

- ENR process will include facilities for supplemental carbon addition (not sure yet if they will add methanol or Micro-C). Mr. Hayner anticipates that the supplemental carbon will not be in constant use.

- There was much more foam and scum on the Schreibers and clarifier in train 1 than train 2- Mr. Hayner said have had to switch flow back and for the between trains recently, train 1 not fully recovered yet. Train 1 put back on line March 23rd.

- The aerobic Schreiber tank of train Two was offline on the day of this inspection. Mr. Hayner said the wheel went down about 5:30 am. Plant staff was working on the repair while we were on site.

- Mr. Hayner said once train Three is in service, they will drain train 2 down to repair diffusers in the aerobic tank that were broken in March 2011 when a support beam failed and fell into the tank.

- Clarifier effluent is sent to the Aqua Disk filters. Four of five filters were in use, with the fifth in standby. Plant staff has been replacing the cloth on the filters as the out of service filter changes.

- Filter effluent is sent to UV disinfection. Channels 3 and 4 were recently put into service. Mr. Hayner said they have discovered that the wipers in these two channels are not working; Trojan was coming out during the week of April 11th to repair.

Permit #	VA0060968

LABORATORY INSPECTION

PRESENT DURING INSPECTION: Bruce Jett – Aquia WWTP; Rebecca Johnson, DEQ

1.	Do lab records include sampling date/time, analysis date/time, sample location, test method, test results, analyst's initials, instrument calibration and maintenance, and Certificate of Analysis? ☑ Sampling Date/Time ☑ Analysis Date/Time ☑ Sample Location ☐ Test Method ☐ Test Results ☑ Analyst's Initials ☑ Instrument Calibration & Maintenance ☑ Chain of Custody ☐ Certificate of Analysis	
2.	Are Discharge Monitoring Reports complete and correct? Month(s) reviewed: January - March 2011 **Review of the final effluent data and DMR calculations shoes that TSS has been slightly over reported on the VPDES DMRs. This appears to be a problem with the Excel calculation averaging only results over the QL, not results for every day of sample collection. Mr. Hayner investigated this issue and it had been corrected as of May 3, 2011.** **Although the average concentration results for these parameters were over-reported, they were well below the permit's limits.** **This problem does not appear to have affected the calculations for the Nutrient Trading General Permit.** **Once this problem is corrected, the monthly average concentration and loading results should be checked to determine if they need to be re-calculated for the months affected.**	☑ Yes ☐ No
3.	Are sample location(s) according to permit requirements (after all treatment unless otherwise specified)?	☑ Yes ☐ No
4.	Are sample collection, preservation, and holding times appropriate; and is sampling equipment adequate?	☑ Yes ☐ No
5.	Are grab and composite samples representative of the flow and the nature of the monitored activity?	☑ Yes ☐ No
6.	If analysis is performed at another location, are shipping procedures adequate? List parameters and name & address of contract lab(s): • **Little Falls Run WWTP** **950 Kings Highway** **Fredericksburg, VA 22405** **$cBOD_5$, TSS, Nutrients**	☑ Yes ☐ No
7.	Is Laboratory equipment in proper operating range?	☑ Yes ☐ No
8.	Are annual thermometer calibration(s) adequate?	☑ Yes ☐ No
9.	Is the laboratory grade water supply adequate? **NA**	☐ Yes ☐ No
10.	Are analytical balance(s) adequate? **NA**	☐ Yes ☐ No

LABORATORY INSPECTION (cont.)

11. Parameters evaluated during this inspection (attach checklists):

- [x] pH
- [ ] Temperature
- [ ] Total Residual Chlorine
- [x] Dissolved Oxygen
- [ ] Biochemical Oxygen Demand
- [ ] Total Suspended Solids
- [ ] Ammonia
- [ ] TKN
- [ ] Nitrate + Nitrite
- [ ] Othophosphate

12. [ ] Bacteriological [ ] Fecal Coliform [ ] E. Coli [ ] Enterococci

- [ ] Other (specify)
- [ ] Other (specify)
- [ ] Other (specify)

Comments:

EFFLUENT FIELD DATA:

Flow	MGD	**Dissolved Oxygen**	11.1 mg/L	**TRC (Contact Tank)**	NA mg/L
pH	7.29 S.U.	**Temperature**	17.1 °C	**TRC (Final Effluent)**	NA mg/L
Was a Sampling Inspection conducted?	[x] Yes (see Sampling Inspection Report) [ ] No				

Permit #	VA0060968

CONDITION OF OUTFALL AND EFFLUENT CHARACTERISTICS:

1. Type of outfall: ☑ Shore based ☐ Submerged Diffuser? ☐ Yes ☑ No
2. Are the outfall and supporting structures in good condition? ☑ Yes ☐ No
3. Final Effluent (evidence of following problems): ☐ Sludge bar ☐ Grease ☐ Turbid effluent ☑ Visible foam ☐ Unusual color ☐ Oil sheen
4. Is there a visible effluent plume in the receiving stream? ☐ Yes ☑ No
5. Receiving stream: ☑ No observed problems ☐ Indication of problems (explain below)

Comments:

3. Foam dissipates quickly once in the receiving stream.

REQUIRED CORRECTIVE ACTIONS:

1. Review the Excel calculations used to determine the monthly average concentrations and loadings permitted parameters for accuracy.

2. Provide a copy of the certification certificate for the NIST traceable thermometer E.I. Tech used to conduct the annual plant thermometer accuracy check. This documentation is necessary to demonstrate that the E.I Tech thermometer has been properly certified, and it is recommended that the facility request as copy of this certification to keep for their records.

NOTES and COMMENTS:

- A third treatment train and an enhanced nutrient removal (ENR) structure are being installed. To accommodate construction activity, flows have been shifted between treatment trains recently, resulting in increased scum and foam in process train #1. Phase I of construction was due to be completed by April 8th but was anticipated to take longer.

- The facility experienced a sanitary sewer overflow (SSO) at the headworks structure in March 2011. The cause of the overflow was a due to a valve being left shut by accident while shifting flows between trains. The wastewater was contained on site with no impact to the environment; the incident was reported to DEQ as required by the VPDES permit.

- The staff recently completed a planned bypass around the influent channel; while this bypass was intended to last 13 hours; it lasted three days (April 4-6).

- The collection system has experienced numerous sanitary sewer overflows (SSOs), often at pump stations. Stafford County complied with a consent order (effective June 22, 2010, terminated February 5, 2011) condition to "Repair and upgrade the telemetry system at the plant and applicable pump stations and provide proof of said repairs and upgrades by January 1, 2011)." There were six SSOs reported in the facility's collection system after June 22, 2010 (one due to a construction truck running over a line); one minor SSO since Feb 5, 2011.

ANALYST:	**Bruce Jett**	VPDES NO	**VA0060968**

Parameter: Hydrogen Ion (pH)
Method: Electrometric
01/08

Meter: **Denver Instruments 12877**

METHOD OF ANALYSIS

X	18th Edition of Standard Methods-4500-H-B
	21st or On-Line Edition of Standard Methods-4500-H-B (00)

	pH is a method defined analyte so modifications are not allowed. [40 CFR Part 136.6]	**Y**	**N**
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing the analysis? **NOTE:** Analyze 4 samples of known pH. May use external source of buffer (different lot/manufacturer than buffers used to calibrate meter). Recovery for each of the 4 samples must be ± 0.1 SU of the known concentration of the sample. [SM 1020 B.1]	**X**	
2)	Is the electrode in good condition (no chloride precipitate, etc.)? [2.b/c and 5.b]	**X**	
3)	Is electrode storage solution in accordance with manufacturer's instructions? [Mfr.]	**X**	
4)	Is meter calibrated on at least a daily basis using three buffers all of which are at the same temperature? [4.a] NOTE: Follow manufacturer's instructions.	**X**	
5)	After calibration, is a buffer analyzed as a check sample to verify that calibration is correct? Agreement should by within ± 0.1 SU. [4.a]	**X**	
6)	Do the buffer solutions appear to be free of contamination or growths? [3.1]	**X**	
7)	Are buffer solutions within their listed shelf life or have they been prepared within the last 4 weeks? [3.a]	**X**	
8)	Is the cap or sleeve covering the access hole on the reference electrode removed when measuring pH? [Mfr.]	**X**	
9)	For meters with ATC that also have temperature display, was the thermometer calibrated annually? [SM2550 B.1]	**X**	
10)	Is the temperature of buffer solutions and samples recorded when determining pH? [4.a]	**X**	
11)	Is sample analyzed within 15 minutes of collection? [40 CFR 136.6]	**X**	
12)	Was the electrode rinsed and then blotted dry between reading solutions (Disregard if a portion of the next sample analyzed is used as the rinse solution)? [4.a]	**X**	
13)	Is the sample stirred gently at a constant speed during measurement? [4.b]	**X**	
14)	Does the meter hold a steady reading after reaching equilibrium? [4.b]	**X**	
15)	~~Is a duplicate sample analyzed after every 20 samples if citing 18th or 19th Edition [1020 B.6] or after every 10 samples for 20th or 21st Edition [Part 1020] Note: Not required for *in situ* samples.~~		
16)	~~Is pH of duplicate samples within 0.1 SU of the original sample? [Part 1020]~~		
17)	~~Is there a written procedure for which result will be reported on DMR (Sample or Duplicate) and is this procedure followed? [DEQ]~~		

PROBLEMS:	**None noted or discussed**

ANALYST:	**Bruce Jett**	VPDES NO	**VA0060968**

Parameter: Dissolved Oxygen
Method: Electrode
01/08

Meter: **YSI 550A**

METHOD OF ANALYSIS:

X	18th Edition of Standard Methods-4500-O G
	21st or Online Editions of Standard Methods-4500-O G (01)

	DO is a method defined analyte so modifications are not allowed. [40 CFR Part 136.6]	**Y**	**N**
1)	If samples are collected, is collection carried out with a minimum of turbulence and air bubble formation and is the sample bottle allowed to overflow several times its volume? [B.3]	**In Situ**	
2)	Are meter and electrode operable and providing consistent readings? [3]	**X**	
3)	Is membrane in good condition without trapped air bubbles? [3.b]	**X**	
4)	Is correct filling solution used in electrode? [Mfr.]	**X**	
5)	Are water droplets shaken off the membrane prior to calibration? [Mfr.]	**X**	
6)	Is meter calibrated before use or at least daily? [Mfr.]	**X**	
7)	Is calibration procedure performed according to manufacturer's instructions? [Mfr.]	**X**	
8)	Is sample stirred during analysis? [Mfr.]	**In Situ**	
9)	Is the sample analysis procedure performed according to manufacturer's instructions? [Mfr.]	**X**	
10)	Is meter stabilized before reading D.O.? [Mfr.]	**X**	
11)	Is electrode stored according to manufacturer's instructions? [Mfr.]	**X**	
12)	~~Is a duplicate sample analyzed after every 20 samples if citing 18th or 19th Edition [1020 B.6] or after every 10 samples for 20th or 21st Edition [Part 1020] Note: Not required for *in situ* samples.~~		
13)	~~If a duplicate sample is analyzed, is the reported value for that sampling event, the average concentration of the sample and the duplicate? [DEQ]~~		
14)	~~If a duplicate sample is analyzed, is the relative percent difference (RPD) < 20? [18th ed. Table 1020 I; 21st ed. DEQ]~~		

PROBLEMS:	**None noted or discussed**

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
SAMPLE ANALYSIS HOLDING TIME/CONTAINER/PRESERVATION CHECK SHEET
Revised 3/08 [40 CFR, Part 136.3, Table II]

FACILITY NAME:	**Aquia WWTP**	VPDES NO	**VA0060968**	DATE:	**April 7, 2011**

HOLDING TIMES						SAMPLE CONTAINER				PRESERVATION				
PARAMETER	APPROVED	MET?		LOGGED?		ADEQ. VOLUME		APPROP. TYPE		APPROVED	MET?		CHECKED?	
		Y	N	Y	N	Y	N	Y	N		Y	N	Y	N
BOD5 & CBOD5	48 HOURS									ANALYZE 2 HRS or 6°C	**X**			
TSS	7 DAYS									6°C	**X**			
FECAL COLIFORM / *E. coli / Enterococci*	6 HRS & 2 HRS TO PROCESS									10°C (1 HOUR)+ 0.008% $Na_2S_20_3$	**X**			
pH	15 MIN.		**X**		**X**		**X**		**X**	N/A				
DISSOLVED 0_2	15 MIN./IN SITU	**In Situ**								N/A				
AMMONIA	28 DAYS									6°C + H_2S0_4 pH<2 DECHLOR	**X**			
TKN	28 DAYS									6°C + H_2S0_4 pH<2 DECHLOR	**X**			
NITRATE	48 HOURS									6°C				
NITRATE+NITRITE	28 DAYS									6°C + H_2S0_4 pH<2				
NITRITE	48 HOURS									6°C				
PHOSPHATE, ORTHO	48 HOURS									6°C				
TOTAL PHOS.	28 DAYS									6°C+ H_2S0_4 pH<2	**X**			

COMMENTS: **According to the facility's Chain of Custody forms, samples transported to Little Falls Run WWTP Lab for analysis are generally received at the lab within 2 hours of collection. Holding times for analyses conducted by the certified laboratory were not reviewed as part of this inspection.**

COMMENTS: **pH checks on individual samples done by the certified laboratory were not reviewed as part of this inspection.**

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
EQUIPMENT TEMPERATURE LOG/THERMOMETER CALIBRATION CHECK SHEET

01-08

FACILITY NAME:	**Aquia WWTP**	VPDES NO:	**VA0060968**	DATE:	**April 7, 2011**

EQUIPMENT	RANGE	IN RANGE		INSPECTION READING °C		CHECK & LOG DAILY		CORRECT INCREMENT		ANNUAL THERMOMETER VERIFICATION				
										Is the NIST/NIST Traceable Reference Thermometer within Manufacturer's expiration date or recertified yearly?				Yes\No **See comment**
										DATE CHECKED	MARKED		CORR FACTOR °C	INSPECTION TEMP °C
		Y	N	DEQ	Site	Y	N	Y	N		Y	N		
AUTO SAMPLER	1-6° C	**X**		**1.2**	**1.0**					**4-4-2011**	**X**		**0**	
REAGENT REFRIGER.	1-6° C													
pH METER	± 1° C	**X**		**7.29**	**NA**					**4-4-2011**	**X**		**-0.1**	
DO METER	± 1° C	**X**		**11.1**	**NA**					**4-4-2011**	**X**		**-0.8**	

COMMENTS:	➢ **pH and DO were demonstrated by WWTP staff but not run on a compliance sample.** ➢ **The annual thermometer checks are done by E.I Technical Services.**
PROBLEMS:	**None noted or discussed**

1) Headworks - new grit classifier.

2) Headworks - Grit and grease removal

3) Excavation for installing new 36" pipe from headworks to train #3- Schreiber train #1 in back.

4) Train #1 Schreiber Aerobic tank.

5) Construction of train #3 near clarifier #2.

6) New ENR tanks.

Facility name: Aquia WWTP **VPDES Permit No. VA0060968**
Site Inspection Date: April 7, 2011 **Photos by: Rebecca Johnson** **Layout by: Sharon Allen**

7) New tanks for supplemental carbon for ENR.

8) Sections of Aqua Disk filters to be re-covered.

9) Re-covered Aqua Disk sections.

10) Outfall 001 and view upstream.

11) New discharge pipe to be added to Outfall #1 and view downstream.

12) One of two new backup generators.

Facility name: Aquia WWTP **VPDES Permit No. VA0060968**
Site Inspection Date: April 7, 2011 **Photos by: Rebecca Johnson** **Layout by: Sharon Allen**

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

September 9, 2011

Mr. Michael Smith
Assistant Director of Utilities
1300 Courthouse Road
PO Box 339
Stafford, VA22555-0339

Re**: Aquia WWTP, Permit VA0060968**

Dear Mr. Smith:

Attached is a copy of the Recon Inspection Report generated while conducting a site inspection at the Aquia-Wastewater Treatment Plant (WWTP) on August 17, 2011. This letter is not intended as a case decision under the Virginia Administrative Process Act, Va. Code § 2.2-4000 *et seq*. (APA). The compliance inspection staff would like to thank Mr. Hayner for his time and assistance during the inspection.

A written response concerning the item listed in the Request for Corrective Action is due to this office by October 10, 2011. Your response may be sent either via the US Postal Service or electronically, via E-mail. If you chose to send your response electronically, we recommend sending it as an Acrobat PDF or in a Word-compatible, write-protected format. Additional inspections may be conducted to confirm the facility is in compliance with permit requirements.

Should you want to meet and discuss the noted deficiencies within the report I will provide compliance assistance. If you have any questions or comments concerning this report, please feel free to contact me at the Northern Regional Office at (703) 583-3909 or by E-mail at Rebecca.Johnson@deq.virginia.gov.

Sincerely,

Rebecca J. Johnson

Rebecca Johnson
Environmental Specialist II

cc: Permit/DMR File;
cc electronic: Compliance Manager; Compliance Auditor – DEQ
Ed Hayner- Aquia WWTP

Virginia Department of Environmental Quality
Northern Regional Office

RECON INSPECTION REPORT

FACILITY NAME: Aquia WWTP			**INSPECTION DATE:**	08/17/11
			INSPECTOR	Rebecca Johnson
PERMIT No.: VA0060968			**REPORT DATE:**	09/09/11
TYPE OF FACILITY:	☑ Municipal	☑ Major	**TIME OF INSPECTION:**	Arrival 1320 / Departure 1430
	☐ Industrial	☐ Minor	**TOTAL TIME SPENT (including prep & travel)**	8 Hours
	☐ Federal	☐ Small Minor		
	☐ HP	☐ LP		
PHOTOGRAPHS:	☑ Yes	☐ No	**UNANNOUNCED INSPECTION?**	☑ Yes ☐ No
REVIEWED BY / Date:	Edward L. Stanford 9/8/11			
PRESENT DURING INSPECTION:	**Ed Hayner – Chief Operator, Aquia WWTP**			

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

- Arrived onsite @ 1320.
- The weather conditions were sunny, humid and in the mid 80's.
- I met with Mr. Hayner - for an unannounced site inspection. The purpose of my site visit was to see the progress of the facility upgrades and construction.
- The following observations were made during the inspection:
    - **Mechanical Screening Unit** – Overloaded and not removing the screenings properly. Mr. Hayner said the new screen went online in mid-July and he noticed this issue a week after putting the unit online. He has been in contact with the manufacturer, Headworks, and is currently trying to mitigate the situation. **Photos 1 & 2 (Provided by Mr. Hayner)**
    - **Schreiber Unit 1 & Clarifier 1** – Offline
    - **Schreiber Unit 2** - Appeared chocolate brown, smelled earthy and the zones appeared to be properly mixed. No problems observed. **Photos 3 & 4**
    - **Schreiber Unit 3** - Appeared chocolate brown, smelled earthy, and a lot of debris was observed floating on the surface. **Photos 5, 6 & 7**
    - **Clarifiers 2 & 3** – Minimal floating particles on surface. Algae observed on the effluent weirs. **Photos 8 & 9**
    - **Anoxic Tanks 2 & 3** – Online and working properly.
    - **Clarifier 1**- Undergoing maintenance and tie-in to the anoxic reactor.
    - **UV Units 1 & 4** – Offline
    - **UV units 2 & 3** – Online. Tie-in of the 36" pipe to the new outfall was underway. **Photos 11 & 12.**
    - **Outfall 001** – The new outfall is online. The old outfall is not discharging. Mr. Hayner said the old outfall will be used when the facility reaches the next flow tier. **Photos 13 and 14**
    - **SCADA** – Mr. Hayner said all process units are tied into SCADA, except for the influent flow, UV, and centrifuge.
    - **Generators** – There are two generators. One operates half of the facility if there is a power outage and the other generator operates the other half of the facility. Mr. Hayner said the facility is waiting on a part to install in one of the generators in order for it to be fully operational.

- I asked Mr. Hayner if he could supply me with pictures of the Mechanical Screening Unit and an overview of the facility. On August 18, 2011 Mr. Hayner supplied the photos via e-mail.
- I departed at 1430.

VA DEQ Recon Inspection Report

Permit #	VA0060968

EFFLUENT FIELD DATA: N/A

Flow	MGD	**Dissolved Oxygen**	mg/L	**TRC (Contact Tank)**	mg/L
pH	S.U.	**Temperature**	℃	**TRC (Final Effluent)**	mg/L

Was a Sampling Inspection conducted? ☐ Yes (see Sampling Inspection Report) ☑ No

CONDITION OF OUTFALL AND EFFLUENT CHARACTERISTICS:

1. Type of outfall: ☑ Shore based ☐ Submerged
   Diffuser? ☐ Yes ☐ No
2. Are the outfall and supporting structures in good condition? ☑ Yes ☐ No
3. Final Effluent (evidence of following problems):
   ☐ Sludge bar ☐ Grease
   ☐ Turbid effluent ☐ Visible foam ☐ Unusual color ☐ Oil sheen
4. Is there a visible effluent plume in the receiving stream? ☐ Yes ☑ No
5. Receiving stream: ☑ No observed problems ☐ Indication of problems (explain below)

Comments:
The outfall appeared to be in good condition.

REQUEST for CORRECTIVE ACTION

1. **The Mechanical Screening Unit was clogged and not removing debris efficiently which caused the pass through of debris into the Schreiber unit. As stated in Permit VA0060968, Part II, Q. "Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit."**

NOTES and COMMENTS:

None

Photo 1. Clogged Mechanical Screening Unit (Photo provided by Mr. Hayner)

Photo 2. Clogged Mechanical Screening Unit (Photo provided by Mr. Hayner)

Photo 3. Schreiber Unit 2, anoxic zone

Photo 4. Schreiber Unit 2, aerobic zone

Photo 5. Schreiber Unit 3, anoxic zone with floating debris

Photo 6. Schreiber Unit 3, anoxic zone with plastic debris (Photo enhanced-zoom)

Photo 7. Schreiber Unit 3, anoxic zone with floating debris

Photo 8. Clarifier 2 with floating debris.

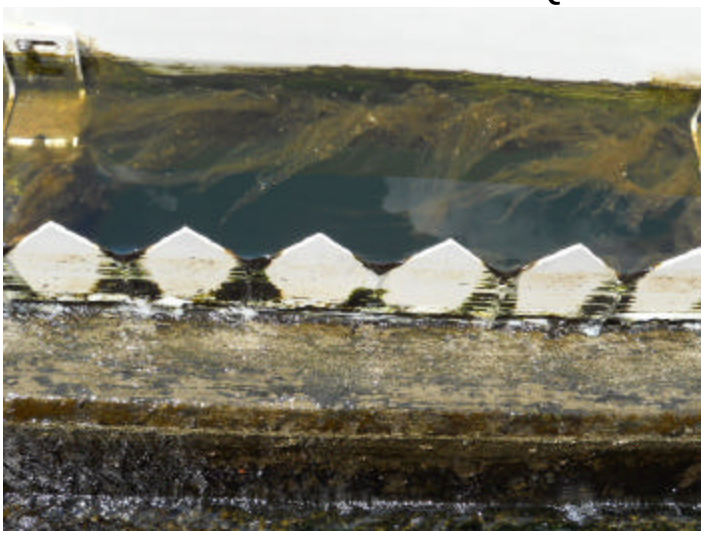


Photo 9. Algae growth on Clarifier 2 effluent weirs.

Photo 10. Clarifier 1 offline

Photo 11. UV Unit, Excavation for installing 36" pipe to outfall

Photo 12. UV Unit Excavation for installing 36" pipe to outfall

Photo 13. Outfall 001

Photo 14. Downstream of Outfall 001.

Photo 15. Overview of the facility as of July 21, 2011. (Photo provided by Mr. Hayner)

To: Alison Thompson
From: Jennifer Carlson

Date: April 9, 2013
Subject: Planning Statement for Aquia WWTF
Permit Number: VA0060968

Information for Outfall 001:

Discharge Type: Municipal
Discharge Flow: 10 MGD with an additional tier of 12 MGD
Receiving Stream: Austin Run, UT
Latitude / Longitude: 38 26 50, -77 23 43
Rivermile: 0.04
Streamcode: 1aXGQ
Waterbody: VAN-A28R
Water Quality Standards: Class III, Section 4a, sp. stds. b

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

   This facility discharges to an unnamed tributary to Austin Run, which has not been monitored and assessed by DEQ. The nearest downstream DEQ monitoring station is 1aAUS000.49, located in Austin Run at the end of Aquia Drive, approximately 0.39 miles downstream of Outfall 001. The following is the water quality summary for this segment of Austin Run, as taken from the Draft 2012 Integrated Report*:

   Class III, Section 4a, special stds. b.

   DEQ ambient water quality monitoring station 1aAUS000.49, at the end of Aquia Drive.

   E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use.

   The aquatic life and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

   **Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

   No.

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the Draft 2012 Integrated Report*							
Aquia Creek	Recreation	*E. coli*	0.04 miles	Tributaries to the Potomac River: Prince William and Stafford Counties Bacteria *DRAFT*	2.09E+13 cfu/year *E. coli*	126 cfu/100 ml --- 12 MGD	*TMDL is still under development*
	Fish Consumption	PCBs	0.85 miles	Tidal Potomac PCB	1.06 g/year PCB	0.064 ng/L --- 12 MGD	10/31/2007
Information in the Chesapeake Bay TMDL							
Chesapeake Bay	Aquatic Life	Total Nitrogen	---	Chesapeake Bay TMDL 12/29/2010	73,093 lbs/yr TN	Edge of Stream (EOS) Loads	N/A
		Total Phosphorus			4,386 lbs/yr TP		
		Total Suspended Solids			730,934.4 lbs/yr TSS		

**Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

The bacteria TMDL for the Tributaries to the Potomac River: Prince William and Stafford Counties is still under development. This facility was included in the development of the TMDL, and has been allotted a WLA. This TMDL project is scheduled for completion no later than August 2013.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

The tidal Potomac River is listed with a PCB impairment and a TMDL has been developed to address this impairment. This facility has been included in the Tidal Potomac River PCB TMDL and has received a WLA. This facility conducted PCB monitoring during the last permit cycle in support of the PCB TMDL. The PCB monitoring data will be evaluated, and source reductions through pollution minimization plans may be needed.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

There are no public water supply intakes located within 5 miles of this discharge.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Aquia WWTP (April-October) Permit No.: VA0060968

Receiving Stream: Austin Run, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =		mg/L
90% Temperature (Annual) =		deg C
90% Temperature (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	n	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	0	MGD
7Q10 (Annual) =	0	MGD
30Q10 (Annual) =	0	MGD
1Q10 (Wet season) =	0	MGD
30Q10 (Wet season)	0	MGD
30Q5 =	0	MGD
Harmonic Mean =	0	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	95.1	mg/L
90% Temp (Annual) =	25	deg C
90% Temp (Wet season) =	19	deg C
90% Maximum pH =	7.7	SU
10% Maximum pH =		SU
Discharge Flow =	10	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile[C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.44E+01	1.82E+00	na	--	1.44E+01	1.82E+00	na	--	--	--	--	--	--	--	--	--	1.44E+01	1.82E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.44E+01	2.68E+00	na	--	1.44E+01	2.68E+00	na	--	--	--	--	--	--	--	--	--	1.44E+01	2.68E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine[C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	3.7E+00	1.1E+00	na	--	3.7E+00	1.1E+00	na	--	--	--	--	--	--	--	--	--	3.7E+00	1.1E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene					1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Attachment 6

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	5.5E+02	7.1E+01	na	--	5.5E+02	7.1E+01	na	--	--	--	--	--	--	--	--	--	5.5E+02	7.1E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	1.3E+01	8.6E+00	na	--	1.3E+01	8.6E+00	na	--	--	--	--	--	--	--	--	--	1.3E+01	8.6E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [c]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide [c]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene [c]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene [c]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC [c]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC [c]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC [c] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane [c]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [c]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	1.1E+02	1.3E+01	na	--	1.1E+02	1.3E+01	na	--	--	--	--	--	--	--	--	--	1.1E+02	1.3E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [c]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.7E+02	1.9E+01	na	4.6E+03	1.7E+02	1.9E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.7E+02	1.9E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine [c]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine [c]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine [c]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total [c]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [c]	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	3.2E+00	--	na	--	3.2E+00	--	na	--	--	--	--	--	--	--	--	--	3.2E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	1.1E+02	1.1E+02	na	2.6E+04	1.1E+02	1.1E+02	na	2.6E+04	--	--	--	--	--	--	--	--	1.1E+02	1.1E+02	na	2.6E+04

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	6.5E-01
Chromium III	4.3E+01
Chromium VI	6.4E+00
Copper	5.1E+00
Iron	na
Lead	7.6E+00
Manganese	na
Mercury	4.6E-01
Nickel	1.2E+01
Selenium	3.0E+00
Silver	1.3E+00
Zinc	4.5E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Aquia WWTP (November-March) Permit No.: VA0060968

Receiving Stream: Austin Run, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO3) =		mg/L	1Q10 (Annual) =	0	MGD	Annual - 1Q10 Mix =	100	%	Mean Hardness (as CaCO3) =	95.1	mg/L
90% Temperature (Annual) =		deg C	7Q10 (Annual) =	0	MGD	- 7Q10 Mix =	100	%	90% Temp (Annual) =	25	deg C
90% Temperature (Wet season) =		deg C	30Q10 (Annual) =	0	MGD	- 30Q10 Mix =	100	%	90% Temp (Wet season) =	19	deg C
90% Maximum pH =		SU	1Q10 (Wet season) =	0	MGD	Wet Season - 1Q10 Mix =	100	%	90% Maximum pH =	7.4	SU
10% Maximum pH =		SU	30Q10 (Wet season)	0	MGD	- 30Q10 Mix =	100	%	10% Maximum pH =		SU
Tier Designation (1 or 2) =	1		30Q5 =	0	MGD				Discharge Flow =	10	MGD
Public Water Supply (PWS) Y/N? =	n		Harmonic Mean =	0	MGD						
Trout Present Y/N? =	n										
Early Life Stages Present Y/N? =	y										

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	2.30E+01	2.41E+00	na	--	2.30E+01	2.41E+00	na	--	--	--	--	--	--	--	--	--	2.30E+01	2.41E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	2.30E+01	3.55E+00	na	--	2.30E+01	3.55E+00	na	--	--	--	--	--	--	--	--	--	2.30E+01	3.55E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	3.7E+00	1.1E+00	na	--	3.7E+00	1.1E+00	na	--	--	--	--	--	--	--	--	--	3.7E+00	1.1E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene				na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Attachment 7

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	5.5E+02	7.1E+01	na	--	5.5E+02	7.1E+01	na	--	--	--	--	--	--	--	--	--	5.5E+02	7.1E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	1.3E+01	8.6E+00	na	--	1.3E+01	8.6E+00	na	--	--	--	--	--	--	--	--	--	1.3E+01	8.6E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [c]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene[c]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene[c]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC[c]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane[c]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone[c]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	1.1E+02	1.3E+01	na	--	1.1E+02	1.3E+01	na	--	--	--	--	--	--	--	--	--	1.1E+02	1.3E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [c]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.7E+02	1.9E+01	na	4.6E+03	1.7E+02	1.9E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.7E+02	1.9E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine[c]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine[c]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine[c]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total[c]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [c]	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	3.2E+00	--	na	--	3.2E+00	--	na	--	--	--	--	--	--	--	--	--	3.2E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	1.1E+02	1.1E+02	na	2.6E+04	1.1E+02	1.1E+02	na	2.6E+04	--	--	--	--	--	--	--	--	1.1E+02	1.1E+02	na	2.6E+04

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	6.5E-01
Chromium III	4.3E+01
Chromium VI	6.4E+00
Copper	5.1E+00
Iron	na
Lead	7.6E+00
Manganese	na
Mercury	4.6E-01
Nickel	1.2E+01
Selenium	3.0E+00
Silver	1.3E+00
Zinc	4.5E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Aquia WWTP Effluent pH & Temp Data (Apr-Oct)

COUNT	DATE	pH	pH-Sort	DATE	TEMP C	Temp-Sort
1	4/1/2000	6.6	6.5	4/1/2000	16	15
2	4/2/2000	6.7	6.5	4/2/2000	16	15
3	4/3/2000	6.6	6.6	4/3/2000	17	15
4	4/4/2000	6.8	6.6	4/4/2000	18	15
5	4/5/2000	6.8	6.6	4/5/2000	16	15
6	4/6/2000	6.9	6.7	4/6/2000	16	15
7	4/7/2000	7.1	6.7	4/7/2000	17	16
8	4/8/2000	6.7	6.7	4/8/2000	17	16
9	4/9/2000	6.7	6.7	4/9/2000	16	16
10	4/10/2000	6.7	6.7	4/10/2000	16	16
11	4/11/2000	6.8	6.7	4/11/2000	16	16
12	4/12/2000	6.9	6.7	4/12/2000	17	16
13	4/13/2000	7.0	6.7	4/13/2000	16	16
14	4/14/2000	6.9	6.7	4/14/2000	16	16
15	4/15/2000	7.0	6.7	4/15/2000	17	16
16	4/16/2000	7.0	6.7	4/16/2000	17	16
17	4/17/2000	7.0	6.7	4/17/2000	18	16
18	4/18/2000	6.9	6.7	4/18/2000	16	16
19	4/19/2000	6.8	6.7	4/19/2000	15	16
20	4/20/2000	7.1	6.7	4/20/2000	17	16
21	4/21/2000	7.1	6.7	4/21/2000	17	16
22	4/22/2000	7.1	6.7	4/22/2000	16	16
23	4/23/2000	7.0	6.7	4/23/2000	17	17
24	4/24/2000	6.7	6.8	4/24/2000	17	17
25	4/25/2000	7.0	6.8	4/25/2000	17	17
26	4/26/2000	6.8	6.8	4/26/2000	15	17
27	4/27/2000	6.9	6.8	4/27/2000	15	17
28	4/28/2000	6.9	6.8	4/28/2000	17	17
29	4/29/2000	7.2	6.8	4/29/2000	17	17
30	4/30/2000	7.4	6.8	4/30/2000	18	17
31	5/1/2000	7.0	6.8	5/1/2000	18	17
32	5/2/2000	7.1	6.8	5/2/2000	19	17
33	5/3/2000	7.2	6.8	5/3/2000	19	17
34	5/4/2000	7.3	6.8	5/4/2000	19	17
35	5/5/2000	7.3	6.8	5/5/2000	20	17
36	5/6/2000	7.4	6.8	5/6/2000	21	17
37	5/7/2000	7.2	6.8	5/7/2000	21	17
38	5/8/2000	7.1	6.8	5/8/2000	21	17
39	5/9/2000	7.1	6.8	5/9/2000	20	17
40	5/10/2000	7.1	6.8	5/10/2000	22	17
41	5/11/2000	7.1	6.8	5/11/2000	19	17
42	5/12/2000	7.3	6.8	5/12/2000	20	17
43	5/13/2000	7.3	6.9	5/13/2000	22	17
44	5/14/2000	7.0	6.9	5/14/2000	21	17
45	5/15/2000	6.8	6.9	5/15/2000	20	17
46	5/16/2000	7.1	6.9	5/16/2000	19	17
47	5/17/2000	7.3	6.9	5/17/2000	19	17
48	5/18/2000	7.1	6.9	5/18/2000	21	17
49	5/19/2000	7.2	6.9	5/19/2000	22	17
50	5/20/2000	7.3	6.9	5/20/2000	20	17
51	5/21/2000	7.0	6.9	5/21/2000	19	17

Aquia WWTP Effluent pH & Temp Data (Apr-Oct)

52	5/22/2000	6.8	6.9	5/22/2000	19	17
53	5/23/2000	7.1	6.9	5/23/2000	20	17
54	5/24/2000	7.1	6.9	5/24/2000	21	18
55	5/25/2000	7.1	6.9	5/25/2000	21	18
56	5/26/2000	7.0	6.9	5/26/2000	21	18
57	5/27/2000	7.0	6.9	5/27/2000	21	18
58	5/28/2000	7.2	6.9	5/28/2000	20	18
59	5/29/2000	7.2	6.9	5/29/2000	19	18
60	5/30/2000	6.9	6.9	5/30/2000	20	18
61	5/31/2000	7.1	6.9	5/31/2000	20	18
62	6/1/2000	7.0	6.9	6/1/2000	20	18
63	6/2/2000	7.1	6.9	6/2/2000	22	18
64	6/3/2000	7.2	6.9	6/3/2000	22	18
65	6/4/2000	7.4	6.9	6/4/2000	21	18
66	6/5/2000	7.2	6.9	6/5/2000	21	18
67	6/6/2000	7.1	6.9	6/6/2000	20	18
68	6/7/2000	7.2	6.9	6/7/2000	20	18
69	6/8/2000	7.1	6.9	6/8/2000	21	18
70	6/9/2000	7.0	6.9	6/9/2000	21	18
71	6/10/2000	7.1	6.9	6/10/2000	22	18
72	6/11/2000	7.2	6.9	6/11/2000	23	18
73	6/12/2000	7.0	6.9	6/12/2000	23	18
74	6/13/2000	7.1	7.0	6/13/2000	23	18
75	6/14/2000	7.3	7.0	6/14/2000	22	18
76	6/15/2000	7.1	7.0	6/15/2000	22	18
77	6/16/2000	7.2	7.0	6/16/2000	22	18
78	6/17/2000	7.2	7.0	6/17/2000	25	18
79	6/18/2000	7.1	7.0	6/18/2000	24	18
80	6/19/2000	7.1	7.0	6/19/2000	23	18
81	6/20/2000	7.1	7.0	6/20/2000	23	18
82	6/21/2000	7.1	7.0	6/21/2000	23	18
83	6/22/2000	7.0	7.0	6/22/2000	23	19
84	6/23/2000	7.0	7.0	6/23/2000	23	19
85	6/24/2000	7.0	7.0	6/24/2000	23	19
86	6/25/2000	7.2	7.0	6/25/2000	24	19
87	6/26/2000	7.2	7.0	6/26/2000	24	19
88	6/27/2000	7.3	7.0	6/27/2000	24	19
89	6/28/2000	7.0	7.0	6/28/2000	23	19
90	6/29/2000	7.2	7.0	6/29/2000	23	19
91	6/30/2000	7.1	7.0	6/30/2000	23	19
92	7/1/2000	7.2	7.0	7/1/2000	23	19
93	7/2/2000	7.8	7.0	7/2/2000	23	19
94	7/3/2000	7.8	7.0	7/3/2000	23	19
95	7/4/2000	7.5	7.0	7/4/2000	23	19
96	7/5/2000	7.4	7.0	7/5/2000	24	19
97	7/6/2000	7.5	7.0	7/6/2000	22	19
98	7/7/2000	7.4	7.0	7/7/2000	23	19
99	7/8/2000	7.6	7.0	7/8/2000	22	19
100	7/9/2000	7.7	7.0	7/9/2000	23	19
101	7/10/2000	7.6	7.0	7/10/2000	25	19
102	7/11/2000	7.6	7.0	7/11/2000	24	19
103	7/12/2000	7.7	7.0	7/12/2000	23	19

104	7/13/2000	7.6	7.0	7/13/2000	23	19
105	7/14/2000	7.7	7.0	7/14/2000	23	19
106	7/15/2000	7.8	7.0	7/15/2000	23	19
107	7/16/2000	7.7	7.0	7/16/2000	24	19
108	7/17/2000	7.3	7.0	7/17/2000	24	19
109	7/18/2000	7.6	7.0	7/18/2000	24	19
110	7/19/2000	7.3	7.0	7/19/2000	25	19
111	7/20/2000	7.4	7.0	7/20/2000	22	19
112	7/21/2000	7.6	7.0	7/21/2000	23	19
113	7/22/2000	7.8	7.0	7/22/2000	23	19
114	7/23/2000	7.6	7.0	7/23/2000	24	19
115	7/24/2000	7.7	7.0	7/24/2000	23	19
116	7/25/2000	7.7	7.0	7/25/2000	22	19
117	7/26/2000	7.6	7.0	7/26/2000	23	19
118	7/27/2000	7.7	7.0	7/27/2000	24	19
119	7/28/2000	7.6	7.0	7/28/2000	24	19
120	7/29/2000	7.7	7.0	7/29/2000	24	19
121	7/30/2000	7.8	7.0	7/30/2000	24	19
122	7/31/2000	7.8	7.0	7/31/2000	24	19
123	8/1/2000	7.7	7.0	8/1/2000	23	19
124	8/2/2000	7.9	7.0	8/2/2000	25	19
125	8/3/2000	7.7	7.0	8/3/2000	24	19
126	8/4/2000	7.7	7.0	8/4/2000	24	19
127	8/5/2000	7.9	7.0	8/5/2000	23	19
128	8/6/2000	7.9	7.0	8/6/2000	22	19
129	8/7/2000	7.8	7.0	8/7/2000	24	19
130	8/8/2000	7.9	7.0	8/8/2000	25	19
131	8/9/2000	7.9	7.0	8/9/2000	25	19
132	8/10/2000	7.7	7.0	8/10/2000	24	19
133	8/11/2000	7.8	7.0	8/11/2000	25	19
134	8/12/2000	7.8	7.0	8/12/2000	24	19
135	8/13/2000	7.8	7.0	8/13/2000	23	19
136	8/14/2000	7.7	7.0	8/14/2000	23	19
137	8/15/2000	7.7	7.0	8/15/2000	24	20
138	8/16/2000	7.7	7.0	8/16/2000	25	20
139	8/17/2000	7.8	7.0	8/17/2000	22	20
140	8/18/2000	7.8	7.0	8/18/2000	23	20
141	8/19/2000	7.8	7.0	8/19/2000	23	20
142	8/20/2000	7.6	7.0	8/20/2000	21	20
143	8/21/2000	7.7	7.0	8/21/2000	23	20
144	8/22/2000	7.7	7.0	8/22/2000	21	20
145	8/23/2000	7.7	7.0	8/23/2000	23	20
146	8/24/2000	7.7	7.1	8/24/2000	24	20
147	8/25/2000	7.9	7.1	8/25/2000	24	20
148	8/26/2000	7.8	7.1	8/26/2000	23	20
149	8/27/2000	7.7	7.1	8/27/2000	23	20
150	8/28/2000	7.4	7.1	8/28/2000	24	20
151	8/29/2000	7.4	7.1	8/29/2000	23	20
152	8/30/2000	7.3	7.1	8/30/2000	24	20
153	8/31/2000	7.5	7.1	8/31/2000	24	20
154	9/1/2000	7.5	7.1	9/1/2000	24	20
155	9/2/2000	7.4	7.1	9/2/2000	24	20

156	9/3/2000	7.1	7.1	9/3/2000	24	20
157	9/4/2000	7.1	7.1	9/4/2000	24	20
158	9/5/2000	7.2	7.1	9/5/2000	22	20
159	9/6/2000	7.0	7.1	9/6/2000	21	20
160	9/7/2000	7.0	7.1	9/7/2000	22	20
161	9/8/2000	7.1	7.1	9/8/2000	22	20
162	9/9/2000	7.0	7.1	9/9/2000	23	20
163	9/10/2000	7.2	7.1	9/10/2000	22	20
164	9/11/2000	7.1	7.1	9/11/2000	22	20
165	9/12/2000	7.2	7.1	9/12/2000	24	20
166	9/13/2000	7.3	7.1	9/13/2000	24	20
167	9/14/2000	7.1	7.1	9/14/2000	23	20
168	9/15/2000	7.1	7.1	9/15/2000	23	20
169	9/16/2000	7.4	7.1	9/16/2000	23	20
170	9/17/2000	7.3	7.1	9/17/2000	21	20
171	9/18/2000	7.2	7.1	9/18/2000	22	20
172	9/19/2000	7.3	7.1	9/19/2000	23	20
173	9/20/2000	7.1	7.1	9/20/2000	22	20
174	9/21/2000	7.1	7.1	9/21/2000	23	20
175	9/22/2000	7.1	7.1	9/22/2000	21	20
176	9/23/2000	7.1	7.1	9/23/2000	23	20
177	9/24/2000	7.0	7.1	9/24/2000	23	20
178	9/25/2000	6.7	7.1	9/25/2000	22	20
179	9/26/2000	6.9	7.1	9/26/2000	20	20
180	9/27/2000	7.1	7.1	9/27/2000	20	20
181	9/28/2000	7.0	7.1	9/28/2000	21	20
182	9/29/2000	7.1	7.1	9/29/2000	21	20
183	9/30/2000	6.9	7.1	9/30/2000	19	20
184	10/1/2000	7.2	7.1	10/1/2000	19	20
185	10/2/2000	6.9	7.1	10/2/2000	21	20
186	10/3/2000	7.8	7.1	10/3/2000	21	20
187	10/4/2000	7.6	7.1	10/4/2000	22	20
188	10/5/2000	7.7	7.1	10/5/2000	22	20
189	10/6/2000	7.6	7.1	10/6/2000	22	20
190	10/7/2000	7.7	7.1	10/7/2000	20	20
191	10/8/2000	7.7	7.1	10/8/2000	20	20
192	10/9/2000	7.6	7.1	10/9/2000	17	20
193	10/10/2000	7.9	7.1	10/10/2000	19	20
194	10/11/2000	7.3	7.1	10/11/2000	18	20
195	10/12/2000	7.1	7.1	10/12/2000	17	20
196	10/13/2000	7.0	7.1	10/13/2000	18	20
197	10/14/2000	7.2	7.1	10/14/2000	19	20
198	10/15/2000	7.6	7.1	10/15/2000	19	20
199	10/16/2000	6.9	7.1	10/16/2000	21	20
200	10/17/2000	7.3	7.1	10/17/2000	21	20
201	10/18/2000	7.4	7.1	10/18/2000	22	20
202	10/19/2000	7.3	7.1	10/19/2000	20	20
203	10/20/2000	7.4	7.1	10/20/2000	19	20
204	10/21/2000	7.4	7.1	10/21/2000	20	20
205	10/22/2000	7.3	7.1	10/22/2000	20	21
206	10/23/2000	7.0	7.1	10/23/2000	19	21
207	10/24/2000	7.3	7.1	10/24/2000	19	21

208	10/25/2000	7.7	7.1	10/25/2000	21	21
209	10/26/2000	7.4	7.1	10/26/2000	20	21
210	10/27/2000	7.3	7.1	10/27/2000	20	21
211	10/28/2000	7.3	7.1	10/28/2000	21	21
212	10/29/2000	7.3	7.1	10/29/2000	19	21
213	10/30/2000	7.3	7.1	10/30/2000	17	21
214	10/31/2000	7.3	7.1	10/31/2000	19	21
215	4/1/2001	7.0	7.1	4/1/2001	19	21
216	4/2/2001	7.0	7.1	4/2/2001	17	21
217	4/3/2001	7.1	7.1	4/3/2001	15	21
218	4/4/2001	7.3	7.1	4/4/2001	15	21
219	4/5/2001	6.9	7.1	4/5/2001	16	21
220	4/6/2001	7.1	7.1	4/6/2001	17	21
221	4/7/2001	7.4	7.1	4/7/2001	17	21
222	4/8/2001	7.4	7.1	4/8/2001	16	21
223	4/9/2001	7.2	7.1	4/9/2001	18	21
224	4/10/2001	7.2	7.1	4/10/2001	18	21
225	4/11/2001	7.2	7.1	4/11/2001	18	21
226	4/12/2001	7.3	7.1	4/12/2001	18	21
227	4/13/2001	7.2	7.1	4/13/2001	19	21
228	4/14/2001	7.6	7.1	4/14/2001	17	21
229	4/15/2001	7.4	7.1	4/15/2001	17	21
230	4/16/2001	7.5	7.1	4/16/2001	17	21
231	4/17/2001	7.4	7.1	4/17/2001	18	21
232	4/18/2001	7.4	7.1	4/18/2001	17	21
233	4/19/2001	7.5	7.1	4/19/2001	15	21
234	4/20/2001	7.4	7.1	4/20/2001	16	21
235	4/21/2001	7.4	7.1	4/21/2001	21	21
236	4/22/2001	7.3	7.1	4/22/2001	20	21
237	4/23/2001	7.3	7.1	4/23/2001	22	21
238	4/24/2001	7.2	7.1	4/24/2001	20	21
239	4/25/2001	7.0	7.1	4/25/2001	20	21
240	4/26/2001	7.1	7.1	4/26/2001	18	21
241	4/27/2001	7.0	7.1	4/27/2001	20	21
242	4/28/2001	7.3	7.1	4/28/2001	19	21
243	4/29/2001	7.3	7.1	4/29/2001	19	21
244	4/30/2001	7.2	7.2	4/30/2001	20	21
245	5/1/2001	7.3	7.2	5/1/2001	19	21
246	5/2/2001	7.2	7.2	5/2/2001	20	21
247	5/3/2001	7.0	7.2	5/3/2001	21	21
248	5/4/2001	7.3	7.2	5/4/2001	21	21
249	5/5/2001	7.5	7.2	5/5/2001	21	21
250	5/6/2001	7.5	7.2	5/6/2001	21	21
251	5/7/2001	7.1	7.2	5/7/2001	19	21
252	5/8/2001	7.3	7.2	5/8/2001	18	21
253	5/9/2001	7.3	7.2	5/9/2001	20	21
254	5/10/2001	7.4	7.2	5/10/2001	20	21
255	5/11/2001	7.4	7.2	5/11/2001	20	21
256	5/12/2001	7.4	7.2	5/12/2001	20	21
257	5/13/2001	7.5	7.2	5/13/2001	19	21
258	5/14/2001	7.4	7.2	5/14/2001	19	21
259	5/15/2001	7.3	7.2	5/15/2001	20	21

260	5/16/2001	7.4	7.2	5/16/2001	18	21
261	5/17/2001	7.4	7.2	5/17/2001	19	21
262	5/18/2001	7.3	7.2	5/18/2001	19	21
263	5/19/2001	7.4	7.2	5/19/2001	20	21
264	5/20/2001	7.3	7.2	5/20/2001	20	21
265	5/21/2001	7.2	7.2	5/21/2001	18	21
266	5/22/2001	7.2	7.2	5/22/2001	21	21
267	5/23/2001	7.3	7.2	5/23/2001	20	21
268	5/24/2001	6.7	7.2	5/24/2001	21	21
269	5/25/2001	7.2	7.2	5/25/2001	20	21
270	5/26/2001	7.2	7.2	5/26/2001	20	21
271	5/27/2001	7.4	7.2	5/27/2001	21	22
272	5/28/2001	7.4	7.2	5/28/2001	21	22
273	5/29/2001	7.1	7.2	5/29/2001	20	22
274	5/30/2001	7.2	7.2	5/30/2001	20	22
275	5/31/2001	7.1	7.2	5/31/2001	20	22
276	6/1/2001	7.3	7.2	6/1/2001	20	22
277	6/2/2001	7.2	7.2	6/2/2001	21	22
278	6/3/2001	7.0	7.2	6/3/2001	21	22
279	6/4/2001	7.0	7.2	6/4/2001	21	22
280	6/5/2001	7.3	7.2	6/5/2001	21	22
281	6/6/2001	7.2	7.2	6/6/2001	22	22
282	6/7/2001	7.3	7.2	6/7/2001	22	22
283	6/8/2001	7.3	7.2	6/8/2001	22	22
284	6/9/2001	7.2	7.2	6/9/2001	21	22
285	6/10/2001	7.4	7.2	6/10/2001	22	22
286	6/11/2001	7.0	7.2	6/11/2001	19	22
287	6/12/2001	7.1	7.2	6/12/2001	22	22
288	6/13/2001	7.1	7.2	6/13/2001	23	22
289	6/14/2001	7.2	7.2	6/14/2001	22	22
290	6/15/2001	7.2	7.2	6/15/2001	23	22
291	6/16/2001	7.4	7.2	6/16/2001	23	22
292	6/17/2001	7.4	7.2	6/17/2001	22	22
293	6/18/2001	7.2	7.2	6/18/2001	23	22
294	6/19/2001	7.4	7.2	6/19/2001	23	22
295	6/20/2001	7.4	7.2	6/20/2001	22	22
296	6/21/2001	7.3	7.2	6/21/2001	23	22
297	6/22/2001	7.4	7.2	6/22/2001	24	22
298	6/23/2001	7.5	7.2	6/23/2001	23	22
299	6/24/2001	7.5	7.2	6/24/2001	23	22
300	6/25/2001	7.3	7.2	6/25/2001	22	22
301	6/26/2001	7.4	7.2	6/26/2001	23	22
302	6/27/2001	7.5	7.2	6/27/2001	23	22
303	6/28/2001	7.2	7.2	6/28/2001	24	22
304	6/29/2001	7.3	7.2	6/29/2001	25	22
305	6/30/2001	7.4	7.2	6/30/2001	24	22
306	7/1/2001	7.4	7.2	7/1/2001	24	22
307	7/2/2001	7.4	7.2	7/2/2001	22	22
308	7/3/2001	7.3	7.2	7/3/2001	21	22
309	7/4/2001	7.4	7.2	7/4/2001	22	22
310	7/5/2001	7.4	7.2	7/5/2001	24	22
311	7/6/2001	7.5	7.2	7/6/2001	23	22

312	7/7/2001	7.5	7.2	7/7/2001	23	22
313	7/8/2001	7.5	7.2	7/8/2001	21	22
314	7/9/2001	7.4	7.2	7/9/2001	22	22
315	7/10/2001	8.4	7.2	7/10/2001	23	22
316	7/11/2001	7.3	7.2	7/11/2001	23	22
317	7/12/2001	7.0	7.2	7/12/2001	23	22
318	7/13/2001	7.4	7.2	7/13/2001	23	22
319	7/14/2001	7.5	7.2	7/14/2001	24	22
320	7/15/2001	7.4	7.2	7/15/2001	25	22
321	7/16/2001	7.4	7.2	7/16/2001	23	22
322	7/17/2001	7.3	7.2	7/17/2001	23	22
323	7/18/2001	7.5	7.2	7/18/2001	24	22
324	7/19/2001	7.3	7.2	7/19/2001	23	22
325	7/20/2001	7.3	7.2	7/20/2001	23	22
326	7/21/2001	7.3	7.3	7/21/2001	24	22
327	7/22/2001	7.3	7.3	7/22/2001	23	22
328	7/23/2001	7.2	7.3	7/23/2001	25	22
329	7/24/2001	7.3	7.3	7/24/2001	24	22
330	7/25/2001	7.3	7.3	7/25/2001	25	22
331	7/26/2001	7.4	7.3	7/26/2001	26	22
332	7/27/2001	7.0	7.3	7/27/2001	23	22
333	7/28/2001	7.3	7.3	7/28/2001	23	22
334	7/29/2001	7.3	7.3	7/29/2001	23	22
335	7/30/2001	7.1	7.3	7/30/2001	23	22
336	7/31/2001	7.1	7.3	7/31/2001	22	22
337	8/1/2001	7.1	7.3	8/1/2001	23	22
338	8/2/2001	7.3	7.3	8/2/2001	24	22
339	8/3/2001	7.2	7.3	8/3/2001	24	22
340	8/4/2001	7.5	7.3	8/4/2001	23	22
341	8/5/2001	7.2	7.3	8/5/2001	24	22
342	8/6/2001	7.1	7.3	8/6/2001	23	23
343	8/7/2001	7.3	7.3	8/7/2001	25	23
344	8/8/2001	7.3	7.3	8/8/2001	25	23
345	8/9/2001	7.4	7.3	8/9/2001	24	23
346	8/10/2001	7.2	7.3	8/10/2001	25	23
347	8/11/2001	7.0	7.3	8/11/2001	24	23
348	8/12/2001	7.1	7.3	8/12/2001	25	23
349	8/13/2001	6.7	7.3	8/13/2001	23	23
350	8/14/2001	6.9	7.3	8/14/2001	23	23
351	8/15/2001	7.1	7.3	8/15/2001	23	23
352	8/16/2001	7.2	7.3	8/16/2001	23	23
353	8/17/2001	7.0	7.3	8/17/2001	24	23
354	8/18/2001	7.2	7.3	8/18/2001	24	23
355	8/19/2001	7.3	7.3	8/19/2001	24	23
356	8/20/2001	6.9	7.3	8/20/2001	23	23
357	8/21/2001	7.3	7.3	8/21/2001	24	23
358	8/22/2001	7.2	7.3	8/22/2001	24	23
359	8/23/2001	7.2	7.3	8/23/2001	25	23
360	8/24/2001	7.1	7.3	8/24/2001	24	23
361	8/25/2001	8.0	7.3	8/25/2001	24	23
362	8/26/2001	7.6	7.3	8/26/2001	24	23
363	8/27/2001	7.4	7.3	8/27/2001	24	23

Aquia WWTP Effluent pH & Temp Data (Apr-Oct)

364	8/28/2001	8.2	7.3	8/28/2001	23	23
365	8/29/2001	8.1	7.3	8/29/2001	23	23
366	8/30/2001	7.9	7.3	8/30/2001	25	23
367	8/31/2001	7.7	7.3	8/31/2001	24	23
368	9/1/2001	8.1	7.3	9/1/2001	24	23
369	9/2/2001	7.8	7.3	9/2/2001	23	23
370	9/3/2001	7.8	7.3	9/3/2001	23	23
371	9/4/2001	7.5	7.3	9/4/2001	24	23
372	9/5/2001	7.4	7.3	9/5/2001	23	23
373	9/6/2001	7.6	7.3	9/6/2001	23	23
374	9/7/2001	7.7	7.3	9/7/2001	23	23
375	9/8/2001	7.8	7.3	9/8/2001	24	23
376	9/9/2001	7.6	7.3	9/9/2001	24	23
377	9/10/2001	7.4	7.3	9/10/2001	25	23
378	9/11/2001	7.4	7.3	9/11/2001	23	23
379	9/12/2001	7.6	7.3	9/12/2001	23	23
380	9/13/2001	7.4	7.3	9/13/2001	24	23
381	9/14/2001	7.5	7.3	9/14/2001	23	23
382	9/15/2001	8.0	7.3	9/15/2001	21	23
383	9/16/2001	7.5	7.3	9/16/2001	22	23
384	9/17/2001	7.2	7.3	9/17/2001	22	23
385	9/18/2001	7.3	7.3	9/18/2001	22	23
386	9/19/2001	7.0	7.3	9/19/2001	23	23
387	9/20/2001	7.4	7.3	9/20/2001	23	23
388	9/21/2001	7.1	7.3	9/21/2001	23	23
389	9/22/2001	7.8	7.3	9/22/2001	24	23
390	9/23/2001	7.6	7.3	9/23/2001	24	23
391	9/24/2001	7.3	7.3	9/24/2001	24	23
392	9/25/2001	7.2	7.3	9/25/2001	22	23
393	9/26/2001	7.6	7.3	9/26/2001	21	23
394	9/27/2001	7.3	7.3	9/27/2001	22	23
395	9/28/2001	7.5	7.3	9/28/2001	22	23
396	9/29/2001	7.3	7.3	9/29/2001	21	23
397	9/30/2001	7.4	7.3	9/30/2001	21	23
398	10/1/2001	7.1	7.3	10/1/2001	20	23
399	10/2/2001	7.2	7.3	10/2/2001	21	23
400	10/3/2001	7.1	7.3	10/3/2001	22	23
401	10/4/2001	6.8	7.3	10/4/2001	21	23
402	10/5/2001	6.8	7.3	10/5/2001	21	23
403	10/6/2001	7.2	7.3	10/6/2001	23	23
404	10/7/2001	7.0	7.3	10/7/2001	20	23
405	10/8/2001	7.0	7.3	10/8/2001	20	23
406	10/9/2001	7.0	7.3	10/9/2001	19	23
407	10/10/2001	7.1	7.3	10/10/2001	19	23
408	10/11/2001	7.1	7.3	10/11/2001	20	23
409	10/12/2001	7.0	7.3	10/12/2001	21	23
410	10/13/2001	7.1	7.3	10/13/2001	22	23
411	10/14/2001	6.7	7.3	10/14/2001	22	23
412	10/15/2001	6.5	7.3	10/15/2001	21	23
413	10/16/2001	6.7	7.3	10/16/2001	21	23
414	10/17/2001	7.1	7.3	10/17/2001	20	23
415	10/18/2001	6.9	7.3	10/18/2001	19	23

416	10/19/2001	7.1	7.3	10/19/2001	19	23
417	10/20/2001	7.0	7.3	10/20/2001	19	23
418	10/21/2001	6.9	7.3	10/21/2001	20	23
419	10/22/2001	6.6	7.3	10/22/2001	19	23
420	10/23/2001	6.8	7.3	10/23/2001	20	23
421	10/24/2001	6.5	7.4	10/24/2001	21	23
422	10/25/2001	6.8	7.4	10/25/2001	22	23
423	10/26/2001	6.7	7.4	10/26/2001	20	23
424	10/27/2001	7.0	7.4	10/27/2001	17	23
425	10/28/2001	7.0	7.4	10/28/2001	18	23
426	10/29/2001	6.7	7.4	10/29/2001	19	23
427	10/30/2001	6.7	7.4	10/30/2001	19	23
428	10/31/2001	6.9	7.4	10/31/2001	19	23
429	4/1/2002	6.8	7.4	4/1/2002	18	23
430	4/2/2002	7.1	7.4	4/2/2002	18	23
431	4/3/2002	6.8	7.4	4/3/2002	20	23
432	4/4/2002	7.0	7.4	4/4/2002	17	23
433	4/5/2002	7.1	7.4	4/5/2002	17	23
434	4/6/2002	7.3	7.4	4/6/2002	16	23
435	4/7/2002	7.0	7.4	4/7/2002	16	23
436	4/8/2002	6.7	7.4	4/8/2002	17	23
437	4/9/2002	6.9	7.4	4/9/2002	18	23
438	4/10/2002	7.0	7.4	4/10/2002	18	23
439	4/11/2002	6.7	7.4	4/11/2002	18	23
440	4/12/2002	6.7	7.4	4/12/2002	18	23
441	4/13/2002	6.8	7.4	4/13/2002	17	23
442	4/14/2002	7.0	7.4	4/14/2002	19	23
443	4/15/2002	6.8	7.4	4/15/2002	20	23
444	4/16/2002	6.9	7.4	4/16/2002	21	23
445	4/17/2002	6.9	7.4	4/17/2002	21	23
446	4/18/2002	6.9	7.4	4/18/2002	21	23
447	4/19/2002	6.8	7.4	4/19/2002	21	23
448	4/20/2002	7.2	7.4	4/20/2002	21	23
449	4/21/2002	7.2	7.4	4/21/2002	18	23
450	4/22/2002	6.8	7.4	4/22/2002	18	23
451	4/23/2002	6.9	7.4	4/23/2002	18	23
452	4/24/2002	7.0	7.4	4/24/2002	17	23
453	4/25/2002	7.3	7.4	4/25/2002	17	23
454	4/26/2002	7.2	7.4	4/26/2002	17	23
455	4/27/2002	7.4	7.4	4/27/2002	18	23
456	4/28/2002	7.4	7.4	4/28/2002	18	23
457	4/29/2002	7.0	7.4	4/29/2002	19	23
458	4/30/2002	7.1	7.4	4/30/2002	19	23
459	5/1/2002	7.0	7.4	5/1/2002	19	23
460	5/2/2002	6.9	7.4	5/2/2002	20	24
461	5/3/2002	6.8	7.4	5/3/2002	20	24
462	5/4/2002	6.9	7.4	5/4/2002	22	24
463	5/5/2002	7.2	7.4	5/5/2002	19	24
464	5/6/2002	6.9	7.4	5/6/2002	20	24
465	5/7/2002	6.8	7.4	5/7/2002	20	24
466	5/8/2002	7.0	7.4	5/8/2002	21	24
467	5/9/2002	7.1	7.4	5/9/2002	21	24

468	5/10/2002	6.9	7.4	5/10/2002	22	24
469	5/11/2002	7.1	7.4	5/11/2002	21	24
470	5/12/2002	7.1	7.4	5/12/2002	20	24
471	5/13/2002	7.2	7.4	5/13/2002	20	24
472	5/14/2002	7.1	7.4	5/14/2002	21	24
473	5/15/2002	7.1	7.4	5/15/2002	20	24
474	5/16/2002	7.2	7.4	5/16/2002	20	24
475	5/17/2002	7.0	7.4	5/17/2002	22	24
476	5/18/2002	7.1	7.4	5/18/2002	22	24
477	5/19/2002	7.5	7.4	5/19/2002	20	24
478	5/20/2002	7.1	7.4	5/20/2002	20	24
479	5/21/2002	7.0	7.4	5/21/2002	20	24
480	5/22/2002	7.1	7.4	5/22/2002	19	24
481	5/23/2002	7.0	7.4	5/23/2002	20	24
482	5/24/2002	7.1	7.4	5/24/2002	21	24
483	5/25/2002	7.2	7.4	5/25/2002	22	24
484	5/26/2002	7.2	7.4	5/26/2002	22	24
485	5/27/2002	7.4	7.4	5/27/2002	23	24
486	5/28/2002	7.2	7.4	5/28/2002	23	24
487	5/29/2002	7.2	7.4	5/29/2002	22	24
488	5/30/2002	7.1	7.4	5/30/2002	23	24
489	5/31/2002	7.0	7.4	5/31/2002	23	24
490	6/1/2002	7.3	7.4	6/1/2002	24	24
491	6/2/2002	7.1	7.4	6/2/2002	23	24
492	6/3/2002	6.9	7.4	6/3/2002	23	24
493	6/4/2002	7.0	7.4	6/4/2002	21	24
494	6/5/2002	7.0	7.4	6/5/2002	23	24
495	6/6/2002	7.0	7.4	6/6/2002	24	24
496	6/7/2002	7.1	7.4	6/7/2002	23	24
497	6/8/2002	7.4	7.4	6/8/2002	22	24
498	6/9/2002	7.4	7.4	6/9/2002	22	24
499	6/10/2002	7.2	7.4	6/10/2002	23	24
500	6/11/2002	7.3	7.4	6/11/2002	24	24
501	6/12/2002	7.1	7.4	6/12/2002	24	24
502	6/13/2002	6.9	7.4	6/13/2002	24	24
503	6/14/2002	7.1	7.4	6/14/2002	23	24
504	6/15/2002	7.1	7.5	6/15/2002	23	24
505	6/16/2002	7.1	7.5	6/16/2002	22	24
506	6/17/2002	7.1	7.5	6/17/2002	22	24
507	6/18/2002	7.3	7.5	6/18/2002	24	24
508	6/19/2002	7.3	7.5	6/19/2002	24	24
509	6/20/2002	7.2	7.5	6/20/2002	24	24
510	6/21/2002	7.1	7.5	6/21/2002	23	24
511	6/22/2002	7.3	7.5	6/22/2002	24	24
512	6/23/2002	7.4	7.5	6/23/2002	24	24
513	6/24/2002	7.3	7.5	6/24/2002	24	24
514	6/25/2002	7.3	7.5	6/25/2002	25	24
515	6/26/2002	7.1	7.5	6/26/2002	25	24
516	6/27/2002	7.2	7.5	6/27/2002	25	24
517	6/28/2002	7.3	7.5	6/28/2002	25	24
518	6/29/2002	7.5	7.5	6/29/2002	25	24
519	6/30/2002	7.4	7.5	6/30/2002	24	24

520	7/1/2002	7.5	7.5	7/1/2002	25	24
521	7/2/2002	7.3	7.5	7/2/2002	24	24
522	7/3/2002	7.5	7.5	7/3/2002	25	24
523	7/4/2002	7.1	7.5	7/4/2002	26	24
524	7/5/2002	7.6	7.5	7/5/2002	26	24
525	7/6/2002	7.6	7.5	7/6/2002	25	24
526	7/7/2002	7.6	7.5	7/7/2002	25	24
527	7/8/2002	7.4	7.5	7/8/2002	26	24
528	7/9/2002	7.4	7.5	7/9/2002	23	24
529	7/10/2002	7.5	7.5	7/10/2002	25	24
530	7/11/2002	7.3	7.5	7/11/2002	23	24
531	7/12/2002	7.2	7.5	7/12/2002	23	24
532	7/13/2002	7.6	7.5	7/13/2002	22	24
533	7/14/2002	7.5	7.5	7/14/2002	24	24
534	7/15/2002	7.4	7.5	7/15/2002	25	24
535	7/16/2002	7.5	7.5	7/16/2002	26	24
536	7/17/2002	7.3	7.5	7/17/2002	26	24
537	7/18/2002	7.4	7.5	7/18/2002	25	24
538	7/19/2002	7.4	7.5	7/19/2002	25	24
539	7/20/2002	7.2	7.5	7/20/2002	26	24
540	7/21/2002	7.4	7.5	7/21/2002	26	24
541	7/22/2002	7.4	7.5	7/22/2002	26	24
542	7/23/2002	7.3	7.5	7/23/2002	26	24
543	7/24/2002	7.5	7.5	7/24/2002	26	24
544	7/25/2002	7.4	7.5	7/25/2002	25	24
545	7/26/2002	7.3	7.5	7/26/2002	24	24
546	7/27/2002	7.4	7.5	7/27/2002	24	24
547	7/28/2002	7.3	7.6	7/28/2002	25	24
548	7/29/2002	7.3	7.6	7/29/2002	27	24
549	7/30/2002	7.4	7.6	7/30/2002	26	24
550	7/31/2002	7.3	7.6	7/31/2002	26	24
551	8/1/2002	7.3	7.6	8/1/2002	26	24
552	8/2/2002	7.5	7.6	8/2/2002	25	24
553	8/3/2002	7.5	7.6	8/3/2002	25	24
554	8/4/2002	7.3	7.6	8/4/2002	25	24
555	8/5/2002	7.1	7.6	8/5/2002	26	24
556	8/6/2002	7.3	7.6	8/6/2002	26	24
557	8/7/2002	7.4	7.6	8/7/2002	24	24
558	8/8/2002	7.4	7.6	8/8/2002	24	24
559	8/9/2002	7.5	7.6	8/9/2002	24	24
560	8/10/2002	7.3	7.6	8/10/2002	24	24
561	8/11/2002	7.5	7.6	8/11/2002	25	25
562	8/12/2002	7.4	7.6	8/12/2002	25	25
563	8/13/2002	7.4	7.6	8/13/2002	27	25
564	8/14/2002	7.3	7.6	8/14/2002	27	25
565	8/15/2002	7.6	7.6	8/15/2002	27	25
566	8/16/2002	7.5	7.6	8/16/2002	27	25
567	8/17/2002	7.5	7.6	8/17/2002	28	25
568	8/18/2002	7.3	7.6	8/18/2002	26	25
569	8/19/2002	7.4	7.6	8/19/2002	25	25
570	8/20/2002	7.4	7.6	8/20/2002	27	25
571	8/21/2002	7.3	7.6	8/21/2002	25	25

Aquia WWTP Effluent pH & Temp Data (Apr-Oct)

572	8/22/2002	7.2	7.6	8/22/2002	26	25
573	8/23/2002	7.2	7.6	8/23/2002	27	25
574	8/24/2002	7.3	7.6	8/24/2002	27	25
575	8/25/2002	7.3	7.6	8/25/2002	26	25
576	8/26/2002	7.1	7.7	8/26/2002	25	25
577	8/27/2002	7.0	7.7	8/27/2002	25	25
578	8/28/2002	7.0	7.7	8/28/2002	24	25
579	8/29/2002	6.9	7.7	8/29/2002	24	25
580	8/30/2002	7.1	7.7	8/30/2002	23	25
581	8/31/2002	7.1	7.7	8/31/2002	22	25
582	9/1/2002	7.8	7.7	9/1/2002	23	25
583	9/2/2002	7.8	7.7	9/2/2002	23	25
584	9/3/2002	7.6	7.7	9/3/2002	24	25
585	9/4/2002	7.7	7.7	9/4/2002	25	25
586	9/5/2002	7.5	7.7	9/5/2002	23	25
587	9/6/2002	7.5	7.7	9/6/2002	23	25
588	9/7/2002	7.8	7.7	9/7/2002	24	25
589	9/8/2002	7.8	7.7	9/8/2002	24	25
590	9/9/2002	7.5	7.7	9/9/2002	24	25
591	9/10/2002	7.8	7.7	9/10/2002	25	25
592	9/11/2002	7.9	7.7	9/11/2002	25	25
593	9/12/2002	7.6	7.7	9/12/2002	24	25
594	9/13/2002	7.3	7.7	9/13/2002	23	25
595	9/14/2002	7.5	7.7	9/14/2002	24	25
596	9/15/2002	7.9	7.7	9/15/2002	25	25
597	9/16/2002	7.6	7.7	9/16/2002	25	25
598	9/17/2002	7.4	7.7	9/17/2002	24	25
599	9/18/2002	7.4	7.7	9/18/2002	24	25
600	9/19/2002	7.1	7.7	9/19/2002	25	25
601	9/20/2002	7.4	7.7	9/20/2002	24	25
602	9/21/2002	7.5	7.7	9/21/2002	24	25
603	9/22/2002	7.5	7.8	9/22/2002	25	25
604	9/23/2002	7.2	7.8	9/23/2002	25	25
605	9/24/2002	7.0	7.8	9/24/2002	22	25
606	9/25/2002	7.0	7.8	9/25/2002	22	25
607	9/26/2002	7.2	7.8	9/26/2002	23	25
608	9/27/2002	7.2	7.8	9/27/2002	23	25
609	9/28/2002	7.5	7.8	9/28/2002	21	25
610	9/29/2002	7.4	7.8	9/29/2002	22	25
611	9/30/2002	7.1	7.8	9/30/2002	23	25
612	10/1/2002	7.2	7.8	10/1/2002	26	25
613	10/2/2002	7.1	7.8	10/2/2002	25	25
614	10/3/2002	7.1	7.8	10/3/2002	24	26
615	10/4/2002	7.0	7.8	10/4/2002	24	26
616	10/5/2002	7.3	7.8	10/5/2002	25	26
617	10/6/2002	7.3	7.8	10/6/2002	24	26
618	10/7/2002	7.0	7.8	10/7/2002	24	26
619	10/8/2002	6.7	7.8	10/8/2002	22	26
620	10/9/2002	7.0	7.8	10/9/2002	22	26
621	10/10/2002	7.0	7.8	10/10/2002	22	26
622	10/11/2002	7.2	7.8	10/11/2002	23	26
623	10/12/2002	7.4	7.8	10/12/2002	24	26

624	10/13/2002	7.2	7.8	10/13/2002	23	26
625	10/14/2002	7.0	7.8	10/14/2002	22	26
626	10/15/2002	7.2	7.8	10/15/2002	20	26
627	10/16/2002	7.1	7.9	10/16/2002	20	26
628	10/17/2002	7.1	7.9	10/17/2002	20	26
629	10/18/2002	7.1	7.9	10/18/2002	19	26
630	10/19/2002	7.0	7.9	10/19/2002	19	26
631	10/20/2002	7.2	7.9	10/20/2002	21	26
632	10/21/2002	7.2	7.9	10/21/2002	19	26
633	10/22/2002	6.9	7.9	10/22/2002	19	26
634	10/23/2002	6.9	7.9	10/23/2002	19	27
635	10/24/2002	7.0	7.9	10/24/2002	20	27
636	10/25/2002	7.0	7.9	10/25/2002	19	27
637	10/26/2002	7.2	8.0	10/26/2002	19	27
638	10/27/2002	7.2	8.0	10/27/2002	20	27
639	10/28/2002	6.7	8.1	10/28/2002	19	27
640	10/29/2002	7.2	8.1	10/29/2002	19	27
641	10/30/2002	7.1	8.2	10/30/2002	18	27
642	10/31/2002	7.1	8.4	10/31/2002	18	28

Aquia WWTP Effluent pH & Temp Data (Nov-Mar)

COUNT	DATE	pH	pH-Sort	DATE	TEMP C	Temp-Sort
1	1/1/2000	7.2	6.4	1/1/2000	13	7
2	1/2/2000	7.0	6.5	1/2/2000	14	7
3	1/3/2000	6.9	6.5	1/3/2000	17	8
4	1/4/2000	7.0	6.5	1/4/2000	18	9
5	1/5/2000	7.1	6.5	1/5/2000	15	10
6	1/6/2000	6.9	6.5	1/6/2000	12	10
7	1/7/2000	6.8	6.5	1/7/2000	11	10
8	1/8/2000	7.2	6.5	1/8/2000	12	10
9	1/9/2000	7.1	6.6	1/9/2000	13	10
10	1/10/2000	6.8	6.6	1/10/2000	15	10
11	1/11/2000	7.0	6.6	1/11/2000	14	10
12	1/12/2000	6.9	6.6	1/12/2000	13	10
13	1/13/2000	6.8	6.6	1/13/2000	14	10
14	1/14/2000	7.0	6.6	1/14/2000	12	11
15	1/15/2000	7.1	6.6	1/15/2000	11	11
16	1/16/2000	6.7	6.6	1/16/2000	13	11
17	1/17/2000	6.8	6.6	1/17/2000	12	11
18	1/18/2000	6.8	6.6	1/18/2000	12	11
19	1/19/2000	6.7	6.6	1/19/2000	13	11
20	1/20/2000	6.8	6.6	1/20/2000	12	11
21	1/21/2000	6.8	6.6	1/21/2000	14	11
22	1/22/2000	6.6	6.6	1/22/2000	10	11
23	1/23/2000	6.7	6.7	1/23/2000	12	11
24	1/24/2000	6.7	6.7	1/24/2000	13	11
25	1/25/2000	7.0	6.7	1/25/2000	8	11
26	1/26/2000	6.7	6.7	1/26/2000	11	11
27	1/27/2000	7.0	6.7	1/27/2000	11	11
28	1/28/2000	6.9	6.7	1/28/2000	10	11
29	1/29/2000	6.6	6.7	1/29/2000	7	11
30	1/30/2000	6.7	6.7	1/30/2000	10	11
31	1/31/2000	6.4	6.7	1/31/2000	10	11
32	2/1/2000	6.7	6.7	2/1/2000	12	11
33	2/2/2000	6.8	6.7	2/2/2000	11	11
34	2/3/2000	6.6	6.7	2/3/2000	10	11
35	2/4/2000	6.6	6.7	2/4/2000	11	12
36	2/5/2000	7.4	6.7	2/5/2000	12	12
37	2/6/2000	6.7	6.7	2/6/2000	12	12
38	2/7/2000	6.6	6.7	2/7/2000	12	12
39	2/8/2000	6.8	6.7	2/8/2000	13	12
40	2/9/2000	6.8	6.7	2/9/2000	11	12
41	2/10/2000	6.8	6.7	2/10/2000	12	12
42	2/11/2000	6.9	6.7	2/11/2000	13	12
43	2/12/2000	6.9	6.7	2/12/2000	12	12
44	2/13/2000	6.8	6.7	2/13/2000	11	12
45	2/14/2000	6.7	6.7	2/14/2000	12	12
46	2/15/2000	6.6	6.7	2/15/2000	13	12
47	2/16/2000	6.7	6.7	2/16/2000	13	12
48	2/17/2000	6.6	6.7	2/17/2000	12	12
49	2/18/2000	7.0	6.7	2/18/2000	12	12
50	2/19/2000	6.9	6.7	2/19/2000	14	12
51	2/20/2000	6.8	6.7	2/20/2000	13	12

52	2/21/2000	6.7	6.7	2/21/2000	13	12
53	2/22/2000	6.7	6.7	2/22/2000	12	12
54	2/23/2000	6.7	6.7	2/23/2000	13	12
55	2/24/2000	6.7	6.7	2/24/2000	14	12
56	2/25/2000	7.0	6.7	2/25/2000	15	12
57	2/26/2000	6.9	6.8	2/26/2000	13	12
58	2/27/2000	6.8	6.8	2/27/2000	13	12
59	2/28/2000	6.6	6.8	2/28/2000	16	12
60	2/29/2000	6.8	6.8	2/29/2000	14	12
61	3/1/2000	6.8	6.8	3/1/2000	13	12
62	3/2/2000	6.8	6.8	3/2/2000	15	12
63	3/3/2000	6.7	6.8	3/3/2000	13	12
64	3/4/2000	7.0	6.8	3/4/2000	14	12
65	3/5/2000	7.0	6.8	3/5/2000	15	12
66	3/6/2000	7.0	6.8	3/6/2000	15	12
67	3/7/2000	6.8	6.8	3/7/2000	15	13
68	3/8/2000	6.9	6.8	3/8/2000	17	13
69	3/9/2000	6.9	6.8	3/9/2000	17	13
70	3/10/2000	6.8	6.8	3/10/2000	17	13
71	3/11/2000	6.9	6.8	3/11/2000	16	13
72	3/12/2000	6.7	6.8	3/12/2000	15	13
73	3/13/2000	6.7	6.8	3/13/2000	15	13
74	3/14/2000	6.7	6.8	3/14/2000	15	13
75	3/15/2000	6.6	6.8	3/15/2000	15	13
76	3/16/2000	6.7	6.8	3/16/2000	19	13
77	3/17/2000	6.7	6.8	3/17/2000	16	13
78	3/18/2000	6.9	6.8	3/18/2000	14	13
79	3/19/2000	6.9	6.8	3/19/2000	14	13
80	3/20/2000	6.9	6.8	3/20/2000	14	13
81	3/21/2000	6.7	6.8	3/21/2000	13	13
82	3/22/2000	6.7	6.8	3/22/2000	14	13
83	3/23/2000	6.8	6.8	3/23/2000	16	13
84	3/24/2000	6.8	6.8	3/24/2000	15	13
85	3/25/2000	7.0	6.8	3/25/2000	16	13
86	3/26/2000	6.7	6.8	3/26/2000	18	13
87	3/27/2000	6.6	6.8	3/27/2000	16	13
88	3/28/2000	6.5	6.8	3/28/2000	16	13
89	3/29/2000	6.8	6.8	3/29/2000	17	13
90	3/30/2000	6.7	6.8	3/30/2000	16	13
91	3/31/2000	6.7	6.8	3/31/2000	16	13
92	11/1/2000	7.3	6.9	11/1/2000	18	13
93	11/2/2000	7.5	6.9	11/2/2000	17	13
94	11/3/2000	7.6	6.9	11/3/2000	17	13
95	11/4/2000	7.4	6.9	11/4/2000	20	13
96	11/5/2000	7.3	6.9	11/5/2000	19	13
97	11/6/2000	7.1	6.9	11/6/2000	20	13
98	11/7/2000	7.3	6.9	11/7/2000	19	13
99	11/8/2000	7.1	6.9	11/8/2000	18	13
100	11/9/2000	7.2	6.9	11/9/2000	20	13
101	11/10/2000	7.3	6.9	11/10/2000	20	13
102	11/11/2000	7.3	6.9	11/11/2000	19	13
103	11/12/2000	7.4	6.9	11/12/2000	19	13

104	11/13/2000	6.9	6.9	11/13/2000	18	13
105	11/14/2000	7.4	6.9	11/14/2000	18	13
106	11/15/2000	7.0	6.9	11/15/2000	18	13
107	11/16/2000	7.2	6.9	11/16/2000	17	13
108	11/17/2000	7.7	6.9	11/17/2000	17	13
109	11/18/2000	7.2	6.9	11/18/2000	17	13
110	11/19/2000	7.2	6.9	11/19/2000	17	13
111	11/20/2000	6.9	6.9	11/20/2000	16	14
112	11/21/2000	7.3	6.9	11/21/2000	15	14
113	11/22/2000	7.6	6.9	11/22/2000	16	14
114	11/23/2000	7.4	6.9	11/23/2000	14	14
115	11/24/2000	7.2	6.9	11/24/2000	16	14
116	11/25/2000	7.4	6.9	11/25/2000	15	14
117	11/26/2000	7.2	6.9	11/26/2000	16	14
118	11/27/2000	6.8	6.9	11/27/2000	16	14
119	11/28/2000	7.3	6.9	11/28/2000	18	14
120	11/29/2000	7.1	6.9	11/29/2000	17	14
121	11/30/2000	7.2	6.9	11/30/2000	15	14
122	12/1/2000	7.2	6.9	12/1/2000	15	14
123	12/2/2000	7.6	6.9	12/2/2000	16	14
124	12/3/2000	7.0	6.9	12/3/2000	15	14
125	12/4/2000	6.9	6.9	12/4/2000	13	14
126	12/5/2000	7.1	6.9	12/5/2000	14	14
127	12/6/2000	7.1	6.9	12/6/2000	14	14
128	12/7/2000	7.3	7.0	12/7/2000	11	14
129	12/8/2000	7.1	7.0	12/8/2000	13	14
130	12/9/2000	7.4	7.0	12/9/2000	13	14
131	12/10/2000	7.4	7.0	12/10/2000	13	14
132	12/11/2000	7.1	7.0	12/11/2000	14	14
133	12/12/2000	7.1	7.0	12/12/2000	17	14
134	12/13/2000	7.1	7.0	12/13/2000	14	14
135	12/14/2000	7.0	7.0	12/14/2000	14	14
136	12/15/2000	6.8	7.0	12/15/2000	15	14
137	12/16/2000	7.2	7.0	12/16/2000	14	14
138	12/17/2000	6.9	7.0	12/17/2000	17	14
139	12/18/2000	7.0	7.0	12/18/2000	13	14
140	12/19/2000	7.1	7.0	12/19/2000	14	14
141	12/20/2000	7.1	7.0	12/20/2000	14	14
142	12/21/2000	7.1	7.0	12/21/2000	13	14
143	12/22/2000	6.7	7.0	12/22/2000	14	14
144	12/23/2000	6.8	7.0	12/23/2000	12	14
145	12/24/2000	7.0	7.0	12/24/2000	16	14
146	12/25/2000	7.4	7.0	12/25/2000	11	14
147	12/26/2000	7.3	7.0	12/26/2000	11	14
148	12/27/2000	6.9	7.0	12/27/2000	14	14
149	12/28/2000	7.2	7.0	12/28/2000	11	14
150	12/29/2000	7.4	7.0	12/29/2000	11	14
151	12/30/2000	7.4	7.0	12/30/2000	14	14
152	12/31/2000	7.4	7.0	12/31/2000	11	14
153	1/1/2001	7.2	7.0	1/1/2001	11	14
154	1/2/2001	7.1	7.0	1/2/2001	12	14
155	1/3/2001	7.0	7.0	1/3/2001	11	14

156	1/4/2001	6.7	7.0	1/4/2001	10	14
157	1/5/2001	6.9	7.0	1/5/2001	15	14
158	1/6/2001	7.2	7.0	1/6/2001	14	14
159	1/7/2001	7.3	7.0	1/7/2001	14	14
160	1/8/2001	7.1	7.0	1/8/2001	15	14
161	1/9/2001	7.2	7.0	1/9/2001	11	14
162	1/10/2001	6.7	7.0	1/10/2001	14	14
163	1/11/2001	6.9	7.0	1/11/2001	11	14
164	1/12/2001	7.2	7.0	1/12/2001	14	14
165	1/13/2001	7.4	7.0	1/13/2001	14	14
166	1/14/2001	7.2	7.0	1/14/2001	13	14
167	1/15/2001	7.4	7.0	1/15/2001	13	14
168	1/16/2001	7.2	7.0	1/16/2001	13	14
169	1/17/2001	7.2	7.0	1/17/2001	12	14
170	1/18/2001	7.3	7.0	1/18/2001	13	14
171	1/19/2001	7.0	7.0	1/19/2001	14	14
172	1/20/2001	7.0	7.0	1/20/2001	15	14
173	1/21/2001	7.0	7.0	1/21/2001	10	14
174	1/22/2001	6.8	7.0	1/22/2001	12	14
175	1/23/2001	7.0	7.0	1/23/2001	9	15
176	1/24/2001	7.1	7.0	1/24/2001	7	15
177	1/25/2001	7.1	7.0	1/25/2001	13	15
178	1/26/2001	7.1	7.0	1/26/2001	10	15
179	1/27/2001	7.4	7.0	1/27/2001	15	15
180	1/28/2001	7.6	7.1	1/28/2001	11	15
181	1/29/2001	7.2	7.1	1/29/2001	15	15
182	1/30/2001	7.2	7.1	1/30/2001	15	15
183	1/31/2001	7.3	7.1	1/31/2001	14	15
184	2/1/2001	7.2	7.1	2/1/2001	17	15
185	2/2/2001	7.2	7.1	2/2/2001	17	15
186	2/3/2001	7.5	7.1	2/3/2001	17	15
187	2/4/2001	7.6	7.1	2/4/2001	11	15
188	2/5/2001	7.3	7.1	2/5/2001	17	15
189	2/6/2001	7.5	7.1	2/6/2001	12	15
190	2/7/2001	7.3	7.1	2/7/2001	12	15
191	2/8/2001	7.0	7.1	2/8/2001	14	15
192	2/9/2001	7.1	7.1	2/9/2001	16	15
193	2/10/2001	7.6	7.1	2/10/2001	16	15
194	2/11/2001	7.4	7.1	2/11/2001	15	15
195	2/12/2001	7.1	7.1	2/12/2001	15	15
196	2/13/2001	7.2	7.1	2/13/2001	14	15
197	2/14/2001	7.5	7.1	2/14/2001	14	15
198	2/15/2001	7.4	7.1	2/15/2001	17	15
199	2/16/2001	7.2	7.1	2/16/2001	16	15
200	2/17/2001	7.2	7.1	2/17/2001	16	15
201	2/18/2001	7.4	7.1	2/18/2001	16	15
202	2/19/2001	7.4	7.1	2/19/2001	12	15
203	2/20/2001	7.2	7.1	2/20/2001	18	15
204	2/21/2001	7.1	7.1	2/21/2001	16	15
205	2/22/2001	7.2	7.1	2/22/2001	13	15
206	2/23/2001	7.5	7.1	2/23/2001	11	15
207	2/24/2001	7.4	7.1	2/24/2001	13	15

208	2/25/2001	7.4	7.1	2/25/2001	15	15
209	2/26/2001	7.1	7.1	2/26/2001	16	15
210	2/27/2001	7.2	7.1	2/27/2001	14	15
211	2/28/2001	7.2	7.1	2/28/2001	14	15
212	3/1/2001	7.2	7.1	3/1/2001	16	15
213	3/2/2001	7.1	7.1	3/2/2001	17	15
214	3/3/2001	7.6	7.1	3/3/2001	15	15
215	3/4/2001	7.4	7.1	3/4/2001	17	15
216	3/5/2001	7.2	7.1	3/5/2001	15	15
217	3/6/2001	7.5	7.1	3/6/2001	12	15
218	3/7/2001	7.2	7.1	3/7/2001	13	15
219	3/8/2001	7.1	7.1	3/8/2001	14	15
220	3/9/2001	7.2	7.1	3/9/2001	15	15
221	3/10/2001	7.4	7.1	3/10/2001	15	15
222	3/11/2001	7.3	7.1	3/11/2001	15	15
223	3/12/2001	7.2	7.1	3/12/2001	14	15
224	3/13/2001	7.3	7.1	3/13/2001	15	15
225	3/14/2001	7.2	7.1	3/14/2001	15	15
226	3/15/2001	7.1	7.1	3/15/2001	14	15
227	3/16/2001	7.3	7.1	3/16/2001	16	15
228	3/17/2001	7.4	7.1	3/17/2001	15	15
229	3/18/2001	7.3	7.2	3/18/2001	14	15
230	3/19/2001	7.3	7.2	3/19/2001	14	15
231	3/20/2001	7.1	7.2	3/20/2001	20	15
232	3/21/2001	7.0	7.2	3/21/2001	16	15
233	3/22/2001	7.0	7.2	3/22/2001	15	15
234	3/23/2001	7.0	7.2	3/23/2001	15	15
235	3/24/2001	7.2	7.2	3/24/2001	18	15
236	3/25/2001	7.2	7.2	3/25/2001	15	15
237	3/26/2001	7.1	7.2	3/26/2001	15	15
238	3/27/2001	7.0	7.2	3/27/2001	16	16
239	3/28/2001	7.3	7.2	3/28/2001	14	16
240	3/29/2001	7.1	7.2	3/29/2001	18	16
241	3/30/2001	6.9	7.2	3/30/2001	17	16
242	3/31/2001	7.0	7.2	3/31/2001	14	16
243	11/1/2001	6.9	7.2	11/1/2001	18	16
244	11/2/2001	7.0	7.2	11/2/2001	20	16
245	11/3/2001	6.8	7.2	11/3/2001	22	16
246	11/4/2001	6.5	7.2	11/4/2001	18	16
247	11/5/2001	6.5	7.2	11/5/2001	19	16
248	11/6/2001	6.5	7.2	11/6/2001	20	16
249	11/7/2001	7.1	7.2	11/7/2001	17	16
250	11/8/2001	6.7	7.2	11/8/2001	17	16
251	11/9/2001	6.6	7.2	11/9/2001	18	16
252	11/10/2001	6.8	7.2	11/10/2001	18	16
253	11/11/2001	6.8	7.2	11/11/2001	19	16
254	11/12/2001	6.6	7.2	11/12/2001	17	16
255	11/13/2001	6.5	7.2	11/13/2001	17	16
256	11/14/2001	6.6	7.2	11/14/2001	17	16
257	11/15/2001	6.7	7.2	11/15/2001	18	16
258	11/16/2001	6.7	7.2	11/16/2001	20	16
259	11/17/2001	6.9	7.2	11/17/2001	18	16

Aquia WWTP Effluent pH & Temp Data (Nov-Mar)

260	11/18/2001	6.7	7.2	11/18/2001	19	16
261	11/19/2001	6.5	7.2	11/19/2001	18	16
262	11/20/2001	6.5	7.2	11/20/2001	18	16
263	11/21/2001	6.7	7.2	11/21/2001	16	16
264	11/22/2001	7.0	7.2	11/22/2001	16	16
265	11/23/2001	7.4	7.2	11/23/2001	17	16
266	11/24/2001	7.4	7.2	11/24/2001	18	16
267	11/25/2001	7.4	7.2	11/25/2001	19	16
268	11/26/2001	7.4	7.2	11/26/2001	19	16
269	11/27/2001	7.3	7.2	11/27/2001	18	16
270	11/28/2001	7.3	7.2	11/28/2001	19	16
271	11/29/2001	7.5	7.2	11/29/2001	19	16
272	11/30/2001	7.5	7.2	11/30/2001	20	16
273	12/1/2001	7.7	7.2	12/1/2001	19	16
274	12/2/2001	7.2	7.2	12/2/2001	18	16
275	12/3/2001	7.3	7.2	12/3/2001	15	16
276	12/4/2001	7.3	7.2	12/4/2001	17	16
277	12/5/2001	7.4	7.2	12/5/2001	18	16
278	12/6/2001	8.0	7.2	12/6/2001	17	16
279	12/7/2001	7.3	7.2	12/7/2001	23	16
280	12/8/2001	7.6	7.2	12/8/2001	21	16
281	12/9/2001	7.5	7.2	12/9/2001	18	16
282	12/10/2001	7.0	7.3	12/10/2001	21	16
283	12/11/2001	7.4	7.3	12/11/2001	22	16
284	12/12/2001	7.3	7.3	12/12/2001	21	16
285	12/13/2001	7.6	7.3	12/13/2001	22	16
286	12/14/2001	7.5	7.3	12/14/2001	22	16
287	12/15/2001	7.6	7.3	12/15/2001	21	16
288	12/16/2001	7.2	7.3	12/16/2001	20	16
289	12/17/2001	7.4	7.3	12/17/2001	21	17
290	12/18/2001	7.0	7.3	12/18/2001	21	17
291	12/19/2001	7.1	7.3	12/19/2001	21	17
292	12/20/2001	7.5	7.3	12/20/2001	20	17
293	12/21/2001	7.7	7.3	12/21/2001	19	17
294	12/22/2001	7.6	7.3	12/22/2001	18	17
295	12/23/2001	7.5	7.3	12/23/2001	22	17
296	12/24/2001	7.3	7.3	12/24/2001	19	17
297	12/25/2001	7.6	7.3	12/25/2001	13	17
298	12/26/2001	7.6	7.3	12/26/2001	14	17
299	12/27/2001	7.6	7.3	12/27/2001	14	17
300	12/28/2001	7.7	7.3	12/28/2001	14	17
301	12/29/2001	7.5	7.3	12/29/2001	17	17
302	12/30/2001	7.5	7.3	12/30/2001	15	17
303	12/31/2001	7.3	7.3	12/31/2001	19	17
304	1/1/2002	7.4	7.3	1/1/2002	15	17
305	1/2/2002	7.5	7.3	1/2/2002	16	17
306	1/3/2002	7.1	7.3	1/3/2002	15	17
307	1/4/2002	7.1	7.3	1/4/2002	16	17
308	1/5/2002	7.2	7.3	1/5/2002	14	17
309	1/6/2002	7.4	7.3	1/6/2002	15	17
310	1/7/2002	7.2	7.3	1/7/2002	15	17
311	1/8/2002	7.3	7.3	1/8/2002	16	17

Aquia WWTP Effluent pH & Temp Data (Nov-Mar)

312	1/9/2002	7.2	7.3	1/9/2002	14	17
313	1/10/2002	7.1	7.3	1/10/2002	14	17
314	1/11/2002	7.0	7.3	1/11/2002	16	17
315	1/12/2002	7.0	7.3	1/12/2002	13	17
316	1/13/2002	7.3	7.3	1/13/2002	15	17
317	1/14/2002	7.1	7.3	1/14/2002	14	17
318	1/15/2002	6.9	7.3	1/15/2002	13	17
319	1/16/2002	7.4	7.3	1/16/2002	13	17
320	1/17/2002	7.1	7.3	1/17/2002	16	17
321	1/18/2002	7.1	7.3	1/18/2002	16	17
322	1/19/2002	7.2	7.3	1/19/2002	15	17
323	1/20/2002	7.5	7.4	1/20/2002	14	17
324	1/21/2002	7.5	7.4	1/21/2002	13	17
325	1/22/2002	7.3	7.4	1/22/2002	17	18
326	1/23/2002	7.0	7.4	1/23/2002	14	18
327	1/24/2002	7.3	7.4	1/24/2002	15	18
328	1/25/2002	7.0	7.4	1/25/2002	14	18
329	1/26/2002	7.3	7.4	1/26/2002	12	18
330	1/27/2002	7.2	7.4	1/27/2002	12	18
331	1/28/2002	7.1	7.4	1/28/2002	14	18
332	1/29/2002	7.0	7.4	1/29/2002	15	18
333	1/30/2002	7.0	7.4	1/30/2002	17	18
334	1/31/2002	7.1	7.4	1/31/2002	16	18
335	2/1/2002	7.0	7.4	2/1/2002	18	18
336	2/2/2002	7.3	7.4	2/2/2002	16	18
337	2/3/2002	7.3	7.4	2/3/2002	14	18
338	2/4/2002	7.1	7.4	2/4/2002	14	18
339	2/5/2002	7.2	7.4	2/5/2002	12	18
340	2/6/2002	7.1	7.4	2/6/2002	13	18
341	2/7/2002	7.2	7.4	2/7/2002	13	18
342	2/8/2002	7.1	7.4	2/8/2002	14	18
343	2/9/2002	7.0	7.4	2/9/2002	14	18
344	2/10/2002	6.9	7.4	2/10/2002	12	18
345	2/11/2002	7.1	7.4	2/11/2002	15	18
346	2/12/2002	7.1	7.4	2/12/2002	15	18
347	2/13/2002	6.8	7.4	2/13/2002	15	18
348	2/14/2002	6.9	7.4	2/14/2002	13	18
349	2/15/2002	6.9	7.4	2/15/2002	14	18
350	2/16/2002	6.8	7.4	2/16/2002	15	18
351	2/17/2002	7.3	7.4	2/17/2002	15	18
352	2/18/2002	7.0	7.4	2/18/2002	13	18
353	2/19/2002	7.1	7.4	2/19/2002	13	18
354	2/20/2002	7.0	7.4	2/20/2002	16	19
355	2/21/2002	6.9	7.4	2/21/2002	16	19
356	2/22/2002	6.7	7.4	2/22/2002	15	19
357	2/23/2002	7.2	7.5	2/23/2002	12	19
358	2/24/2002	7.2	7.5	2/24/2002	13	19
359	2/25/2002	7.0	7.5	2/25/2002	15	19
360	2/26/2002	7.1	7.5	2/26/2002	16	19
361	2/27/2002	7.1	7.5	2/27/2002	14	19
362	2/28/2002	7.3	7.5	2/28/2002	12	19
363	3/1/2002	7.0	7.5	3/1/2002	10	19

364	3/2/2002	7.2	7.5	3/2/2002	13	19
365	3/3/2002	7.0	7.5	3/3/2002	16	19
366	3/4/2002	7.1	7.5	3/4/2002	14	19
367	3/5/2002	7.3	7.5	3/5/2002	12	19
368	3/6/2002	6.9	7.5	3/6/2002	16	19
369	3/7/2002	7.2	7.5	3/7/2002	16	19
370	3/8/2002	7.0	7.5	3/8/2002	15	20
371	3/9/2002	7.5	7.5	3/9/2002	16	20
372	3/10/2002	7.2	7.5	3/10/2002	16	20
373	3/11/2002	6.8	7.5	3/11/2002	15	20
374	3/12/2002	7.0	7.5	3/12/2002	14	20
375	3/13/2002	6.9	7.6	3/13/2002	15	20
376	3/14/2002	7.0	7.6	3/14/2002	16	20
377	3/15/2002	7.0	7.6	3/15/2002	17	20
378	3/16/2002	7.3	7.6	3/16/2002	18	20
379	3/17/2002	7.2	7.6	3/17/2002	16	20
380	3/18/2002	7.0	7.6	3/18/2002	16	20
381	3/19/2002	6.8	7.6	3/19/2002	17	21
382	3/20/2002	6.8	7.6	3/20/2002	17	21
383	3/21/2002	6.6	7.6	3/21/2002	15	21
384	3/22/2002	6.8	7.6	3/22/2002	14	21
385	3/23/2002	7.3	7.6	3/23/2002	15	21
386	3/24/2002	7.3	7.6	3/24/2002	14	21
387	3/25/2002	6.9	7.6	3/25/2002	16	21
388	3/26/2002	6.9	7.6	3/26/2002	16	22
389	3/27/2002	6.9	7.7	3/27/2002	16	22
390	3/28/2002	6.9	7.7	3/28/2002	15	22
391	3/29/2002	7.0	7.7	3/29/2002	15	22
392	3/30/2002	7.0	7.7	3/30/2002	18	22
393	3/31/2002	6.9	8.0	3/31/2002	18	23

VA0060968 Aquia WWTP DMR Data

	Average Flow	Maximum Flow	pH Minimum	pH Maximum	TSS Monthly Avg	Total Phosphorus Monthly Avg	Total Nitrogen Monthly Avg	*E. coli*	CBOD Monthly Avg
10-Mar-13	4.8	5.9	6.5	7.6	<QL	0.06	1.02	1	<QL
10-Feb-13	4.8	5.6	6.7	7.6	<QL	0.06	1.05	1	<QL
10-Jan-13	4.6	6.8	6.5	7.7	<QL	0.07	1.47	1	<QL
10-Dec-12	4.4	5.1	6.6	7.7	0.11	0.08	1.67	1	<QL
10-Nov-12	4.6	8.5	6.9	8.1	<QL	0.15	1.59	2	<QL
10-Oct-12	4.5	5.1	6.8	8.0	<QL	0.14	1.66	8	<QL
10-Sep-12	4.6	5.2	7.3	7.7	<QL	0.15	1.47	8	<QL
10-Aug-12	4.6	5.1	7.0	8.0	0.78	0.14	0.88	3	<QL
10-Jul-12	4.9	5.5	7.1	7.8	<QL	0.15	1.21	1	<QL
10-Jun-12	5.3	7.5	6.6	7.7	<QL	0.12	1.47	2	<QL
10-May-12	4.7	6.1	7.0	8.1	0.17	0.08	2.33	1	<QL
10-Apr-12	4.9	5.5	6.6	8.1	<QL	0.06	2.40	1	<QL
10-Mar-12	4.7	6.5	7.0	7.6	<QL	0.08	3.37	1	<QL
10-Feb-12	5.0	6.7	6.9	7.7	0.25	0.07	1.27	1	<QL
10-Jan-12	5.3	10	6.6	7.6	<QL	0.06	0.53	1	<QL
10-Dec-11	4.8	7.5	6.7	7.6	<QL	0.17	1.53	1	<QL
10-Nov-11	5.1	6.9	6.8	8.0	<QL	0.10	0.96	1	<QL
10-Oct-11	5.0	8	7.0	7.9	<QL	0.16	1.67	1	<QL
10-Sep-11	5.0	6.6	6.9	7.9	0.66	0.11	2.52	1	<QL
10-Aug-11	4.8	5.7	7.1	7.8	0.2	0.11	1.35	1	<QL
10-Jul-11	5.2	7.8	7.0	7.8	0.38	0.14	2.72	1	<QL
10-Jun-11	5.5	6.6	6.4	7.3	<QL	0.11	3.26	3	<QL
10-May-11	5.6	9.4	6.5	7.2	0.53	0.08	2.73	20	<QL
10-Apr-11	5.9	9.2	6.4	7.3	1.3	0.07	2.11	7	<QL
10-Mar-11	5.2	6.5	6.7	7.4	1.9	0.08	2.11	3	<QL
10-Feb-11	5.2	6	6.9	7.7	1.3	0.06	2.78	2	<QL
10-Jan-11	5.0	6.1	6.6	7.7	1.7	0.07	2.65	2	<QL
10-Dec-10	5.3	7.2	6.9	7.6	1.2	0.05	2.59	2	<QL
10-Nov-10	5.1	6.6	6.9	7.9	1.2	0.05	1.94	3	<QL
10-Oct-10	5.2	9	6.7	7.8	1.2	0.074	1.80	1	<QL
10-Sep-10	5.2	6.6	6.8	7.5	1.6	0.096	1.96	3	<QL
10-Aug-10	5.3	6	6.5	7.5	2.7	0.095	1.94	6	<QL
10-Jul-10	5.6	6.6	6.5	7.5	1.9	0.061	2.37	4	<QL
10-Jun-10	5.7	6.7	6.8	7.7	1.2	0.07	1.65	2	<QL
10-May-10	6.0	6.7	6.2	7.7	1.3	0.055	1.32	2	<QL
10-Apr-10	6.8	10	6.9	7.4	1.2	0.053	1.72	1	<QL
10-Mar-10	6.4	8.1	6.7	7.4	1.3	0.055	1.68	1	<QL
10-Feb-10	5.9	7.2	6.4	7.2	1.2	0.079	1.99	2	<QL
10-Jan-10	6.6	10	6.5	7.6	2.2	0.063	2.87	1	<QL
10-Dec-09	6.1	9.6	6.9	7.7	1.3	0.052	3.54	2	<QL
10-Nov-09	5.5	7.7	6.9	7.9	1.5	0.099	3.48	1	<QL
10-Oct-09	5.3	6.3	6.8	7.6	1.7	0.15	3.47	4	<QL
10-Sep-09	5.4	6.9	6.3	7.5	1.4	0.093	3.30	3	<QL
10-Aug-09	4.7	5.5	6.8	7.4	1.3	0.15	3.82	1	<QL
10-Jul-09	5.6	8.2	6.4	7.3	1.6	0.14	4.00	1	<QL
10-Jun-09	5.5	7.8	6.5	7.2	1.3	0.075	2.90	1	<QL
10-May-09	5.1	6.2	6.7	7.2	1.3	0.062	2.51	1	<QL
10-Apr-09	4.7	5.6	6.7	7.4	1.2	0.04	3.54	1	<QL
10-Mar-09	4.6	5.2	6.6	7.4	0.12	0.1	4.95	2	<QL
10-Feb-09	4.8	6.6	6.8	7.3	0.56	0.1	6.49	2	<QL
10-Jan-09	4.9	6.9	6.9	7.5	0.45	0.067	5.89	1	<QL

Note - the due date is the 10th of the month following the monitoring period.

Attachment 9

VaFWIS Initial Project Assessment Report Compiled on 3/27/2013, 9:31:51 AM

Help

Known or likely to occur within a **2 mile radius around point 38,26,50.0 77,23,43.0** in **179 Stafford County, VA**

View Map of Site Location

447 Known or Likely Species ordered by Status Concern for Conservation (displaying first 20) (17 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
010032	FESE	II	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
060003	FESE	II	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA,Habitat
040129	ST	I	Sandpiper, upland	Bartramia longicauda		BOVA
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100248	FS	I	Fritillary, regal	Speyeria idalia idalia		BOVA
040093	FS	II	Eagle, bald	Haliaeetus leucocephalus	Yes	BOVA,Habitat,BAEANests
030063	CC	III	Turtle, spotted	Clemmys guttata		BOVA
010077		I	Shiner, bridle	Notropis bifrenatus		BOVA
040372		I	Crossbill, red	Loxia curvirostra		BOVA
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius		BOVA
040319		I	Warbler, black-throated green	Dendroica virens		BOVA
040038		II	Bittern, American	Botaurus lentiginosus		Habitat
040052		II	Duck, American black	Anas rubripes		BOVA
040105		II	Rail, king	Rallus elegans		BOVA,Habitat
040320		II	Warbler, cerulean	Dendroica cerulea		BOVA
040266		II	Wren, winter	Troglodytes troglodytes		BOVA

030068		III	Turtle, eastern box	Terrapene carolina carolina	Yes	BOVA,SppObs
040037		III	Bittern, least	Ixobrychus exilis exilis		BOVA
040094		III	Harrier, northern	Circus cyaneus		BOVA

To view **All 447 species** View 447

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (1 records)

View Map of All Anadromous Fish Use Streams

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
C4	Aquia creek	Confirmed	4		IV	Yes

Impediments to Fish Passage

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (1 records , 1 Observation with Threatened or Endangered species)

View Map of All Query Results Bald Eagle Nests

Nest	N Obs	Latest Date	N Species			View Map
			Different Species	Highest TE*	Highest Tier**	
ST0802	4	May 16 2010	1	FS	II	Yes

Displayed 1 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (3 Reaches)

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Stream Name	Tier Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
(20700112)	FESE	060003	FESE	II	Wedgemussel, dwarf	Alasmidonta heterodon	Yes
Aquia Creek (20700112)	FESE	060003	FESE	II	Wedgemussel, dwarf	Alasmidonta heterodon	Yes
Austin Run (20700112)	FESE	060003	FESE	II	Wedgemussel, dwarf	Alasmidonta heterodon	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species (3 Species)

View Map of Combined Terrestrial Habitat Predicted for 3 WAP Tier I & II Species Listed Below

ordered by Status Concern for Conservation

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
040093	FS	II	Eagle, bald	Haliaeetus leucocephalus	Yes
040038		II	Bittern, American	Botaurus lentiginosus	Yes
040105		II	Rail, king	Rallus elegans	Yes

Public Holdings:

N/A

Compiled on 3/27/2013, 9:31:51 AM I452250.0 report=IPA searchType= R dist= 3218 pol= 38,26,50.0 77,23,43.0

PixelSize=64; Anadromous=0.039615; BRCAR=0.041874; Bats=0.024632; Buffer=0.18095; County=0.074148, Impediments=0.035149; Init=0.218825; PublicLands=0.049516; SppObs=1,195961; TEWaters=0.034916; TierReaches=0.118683; TierTerrestrial=0.115585; Total=1.988432, Trout=0.03774

VaFWIS - Department of Game and Inland Fisheries

38,26,50.0 -77,23,43.0 is the Search Point

Submit Cancel

Search Point

- Change to "clicked" map point
- Fixed at 38,26,50.0 - 77,23,43.0

Show Position Rings

Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles radius

Search Point is at map center

Base Map Choices

Topography

Map Overlay Choices

Current List: Position, Search

Map Overlay Legend

Position Rings 1 mile and 1/4 mile at the Search Point

2 mile radius Search Area

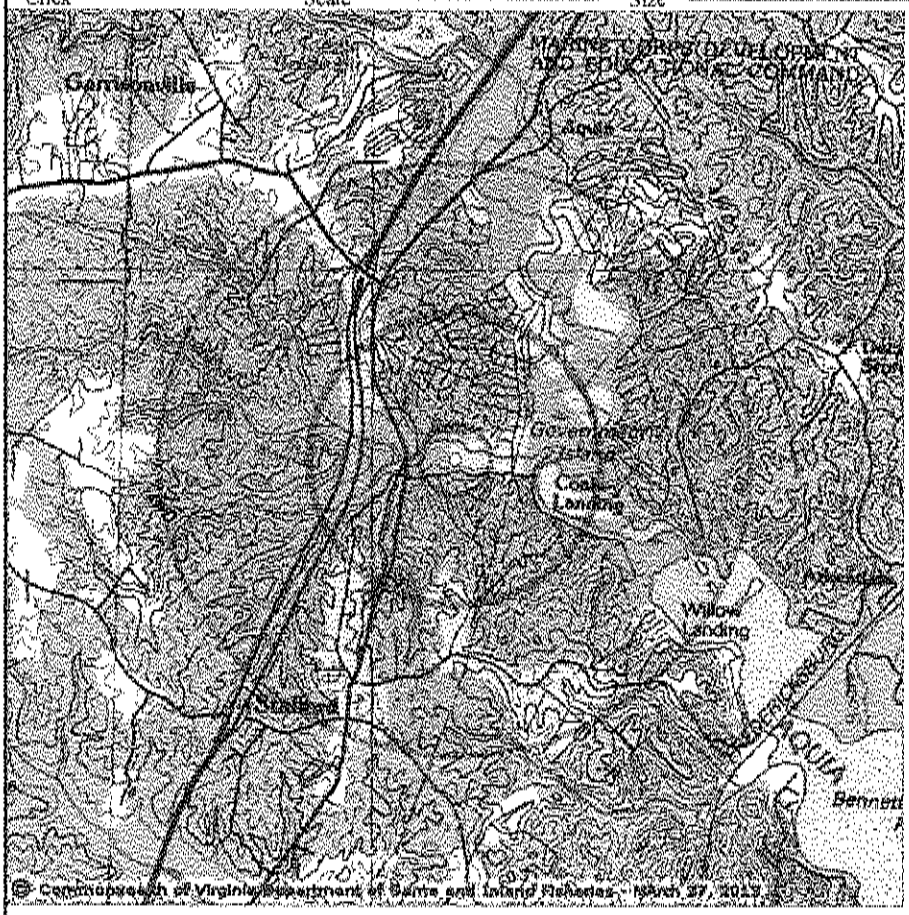
Refresh Browser Page

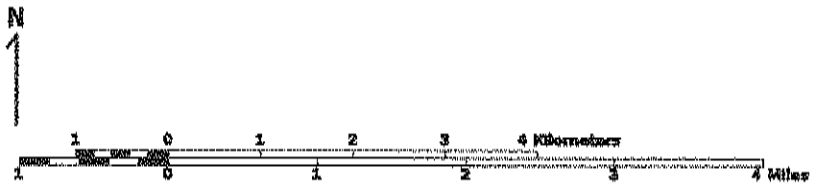
Map Click Point

Map Scale In Zoom Out

Screen Size Small Size Big

Help





Point of Search 38,26,50.0 -77,23,43.0

Map Location 38,26,50.0 -77,23,43.0

Select **Coordinate System:**

- Degrees,Minutes,Seconds Latitude - Longitude
- Decimal Degrees Latitude - Longitude
- Meters UTM NAD83 East North Zone
- Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see Microsoft terraserver-usa.com for details)

Map projection is UTM Zone 18 NAD 1983 with left 286173 and top 4262955. Pixel size is 16 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West.Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+-

	are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic http://www.national.geographic.com/topo All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries. map assembled 2013-03-27 09:30:31 (qa/qc December 5, 2012 8:04 - tn=452250 dist=3218 1) $poi=38.4472222 -77.3952777

4/10/2013 10:32:02 AM

Facility = Aquia WWTP
Chemical = Copper
Chronic averaging period = 4
WLAa = 13
WLAc = 8.6
Q.L. = 1.0
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 3
Expected Value = 2.36666
Variance = 2.0164
C.V. = 0.6
97th percentile daily values = 5.75908
97th percentile 4 day average = 3.93763
97th percentile 30 day average= 2.85432
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

3.1
1.1
2.9

4/10/2013 10:32:42 AM

Facility = Aquia WWTP
Chemical = Nickel
Chronic averaging period = 4
WLAa = 170
WLAc = 19
Q.L. = 2.0
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 2
Expected Value = 2.675
Variance = 2.57602
C.V. = 0.6
97th percentile daily values = 6.50939
97th percentile 4 day average = 4.45063
97th percentile 30 day average= 3.22619
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2.97
2.38

4/10/2013 10:33:18 AM

Facility = Aquia WWTP
Chemical = Zinc
Chronic averaging period = 4
WLAa = 110
WLAc = 110
Q.L. = 20
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 3
Expected Value = 29.5333
Variance = 313.998
C.V. = 0.6
97th percentile daily values = 71.8669
97th percentile 4 day average = 49.1372
97th percentile 30 day average= 35.6187
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

21.8
28.8
38

Facility = Aquia WWTP (VA0060968)
Chemical = Ammonia as Nitrogen (NOV-MAR)
Chronic averaging period = 30
WLAa = 13.6
WLAc = 2.07
Q.L. = 0.2
# samples/mo. = 28
# samples/wk. = 7

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 4.17657709337176
Average Weekly limit = 2.55066573047757
Average Monthly Limit = 2.08241280274032

The data are:

9

MEMORANDUM

TO:	VA0060968 -- Aquia WWTP Modification File
FROM:	Alison Thompson
THROUGH:	Tom Faha
DATE:	January 31, 2007
SUBJECT:	Summary of Water Quality Modeling for Aquia Creek
COPIES:	U:/drive

In mid-2006 Stafford County Utilities applied for a modification of VPDES Permit VA0060968 Aquia WWTP. The facility has a current design capacity of 6.5 MGD with an upper flow tier of 8.0 MGD. With this modification request, Stafford County has asked for another expanded flow tiers of 10 and 12 MGD.

When the permit was reissued in 2003, it was staff's best professional judgment that the monthly average and weekly average Total Phosphorus (TP) loads be capped at 4.4 kg/day and 6.6 kg/day, respectively, when the facility expands to 8.0 MGD. The concentration for TP remained at 0.18 mg/l as specified in the Policy for the Potomac River Embayments (PPRE) 9 VAC 25-415-40. With the expansion to 8.0 MGD, staff stated that additional modeling will be necessary because of the increased phosphorus loadings. During the reissuance, in lieu of modeling, staff capped the phosphorus loading, since the endpoint by which the impacts from phosphorus loadings are measured, specifically, chlorophyll-a, was under evaluation in 2003.

Section 50 of the PPRE states that, "Water quality models may be required to predict the effect of wastewater discharges on the water quality of the receiving waterbody, the embayment, and the Potomac River. The purpose of the modeling shall be to determine if more stringent limits than those required in 9VAC25-415-40 are required to meet water quality standards." The updated model shall take into account previous water quality modeling.

The modeling done in the 1980s by VIMS used chlorophyll-a goals when analyzing the results of the different scenarios. Since then the State has adopted laws and regulations to protect the Chesapeake Bay and its tidal tributaries from the nutrient loads of STPs, and the current Virginia Water Quality Standards (with amendments dated January 12, 2006), include a narrative criterion for chlorophyll-a in 9 VAC 25-260-185C.

The modeling done by VIMS in 1985 found that the Aquia Creek system is Nitrogen limited. It also demonstrated that the water quality in the lower reaches of the embayment was influenced more by the Potomac River; the upper reaches of Aquia Creek, however, are predominantly influenced by the phosphorus loads of the WWTP discharge. The VIMS model looked at the Point Source Nitrogen and Phosphorus. In one run, all forms of nitrogen were eliminated, but this only influenced the nitrogen species distribution in a small stretch (7 km) of the creek. In another run, the phosphorus load was eliminated and the model found that, "...the elimination of point source phosphorus reduces the chlorophyll concentration in the upper reach of the creek." This study also found that "inorganic nitrogen inputs from the STP discharge and from the Potomac River play an important role in supporting the algal population in the creek," but the "influence of the STP discharge is mainly confined to the narrow section of the creek at the upstream end."

In 1987 the Northern Virginia Planning District Commission for the State Water Control Board performed wasteload allocation models and sensitivity analyses for the Potomac embayments, including Aquia Creek. The analysis looked at the Aquia WWTP at a design flow of 3 MGD and 3 TP effluent concentrations (0.18, 0.40, and

1.0 mg/L). The analysis showed that there was no marked increase when the concentration went from 0.18 to 0.40 mg/L. The analysis found that "for increasing TP loads the chlorophyll-a concentrations near and upstream of the WWTP discharge are increased which produce additional dissolved oxygen…A TP concentration of 1.0 mg/L, however, shows a substantial increase in the chlorophyll-a concentration in segment 6 upstream of the WWTP discharge location." Plots of the varying TP loads show that "the variable chlorophyll-a concentrations in the upstream segments are due to the changes in the effluent TP concentrations" (i.e., since the flow was held constant, the load increased with the higher concentrations).

Given the conclusions reached during the original modeling and since Stafford County has asked for an expansion that is four times larger than the volume originally modeled in the 1980s, it is staff's best professional judgment that the phosphorus monthly average and weekly average loads continue to be held at the 6.5 MGD levels or modeling shall be necessary to determine if there shall be any detrimental effects to the upper reaches of Aquia Creek from the increased loads from the WWTP. By capping the phosphorus loadings, in combination with the fact that Aquia must now meet a TN concentration of 3.0 mg/L, we believe the water quality standards of Aquia Creek will be met and no additional modeling will be required. Stafford County may wish to model should they believe less stringent limits would be protective of Aquia Creek.

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Stafford County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2013 to XXX, 2013

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Stafford County Board of Supervisors, PO Box 339, Stafford, VA 22555, VA0060968

NAME AND ADDRESS OF FACILITY: Aquia WWTF, 75 Coal Landing Rd, Stafford, VA 22554

PROJECT DESCRIPTION: Stafford County Board of Supervisors has applied for a reissuance of a permit for the public Aquia WWTF. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 10 million gallons per day into a water body with future expansion to 12 million gallons per day. Sludge from the treatment process will be used as daily cover at the Rappahannock Regional Landfill. The facility proposes to release the treated sewage in an unnamed tributary to Austin Run in Stafford County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD, TSS, Ammonia as N, Dissolved Oxygen, *E. coli,* Total Nitrogen, and Total Phosphorus. The facility will monitor without limitation TKN, Nitrate+Nitrite, and Whole Effluent Toxicity.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.
Name: Alison Thompson
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3834 E-mail: Alison.Thompson@deq.virginia.gov Fax: (703) 583-3821

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Aquia WWTF
NPDES Permit Number: VA0060968
Permit Writer Name: Alison Thompson
Date: April 18, 2013

Major [X] **Minor [ ]** **Industrial [ ]** **Municipal [X]**

I.A. Draft Permit Package Submittal Includes:	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?	X		
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants? 12 MGD tier	X		
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water? PCBs	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?	X		
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

I.B. Permit/Facility Characteristics -- cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production? CTO for 10 MGD tier issued	X		
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?	X		
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs
(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?	X		
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?	X		

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?	X		

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance
not a defense	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Alison Thompson
Title	Water Permits Technical Reviewer
Signature	
Date	4/18/13